QK
3
B16
v.8
fasc.5

ITHACA, NEW YORK
July, 1954
VOL. VIII FASC. V

GENTES HERBARUM

Art. 17. Aliquot Gesneriaceæ cultæ et hybridæ

Art. 18. Chrysopses novæ

Art. 19. Ceratostigma

UNIVERSITY OF MICHIGAN
GENERAL LIBRARY

QK
3
.B16
v.8
fasc.5

VOL. VIII ITHACA, NEW YORK FASC. V

Bailey, Liberty Hyde

GENTES HERBARUM

Occasional Papers on the Kinds of Plants

17. Some cultivated Gesneriaceæ and hybrids

by

H. E. Moore, Jr.

18. Two new Floridan species of Chrysopsis

by

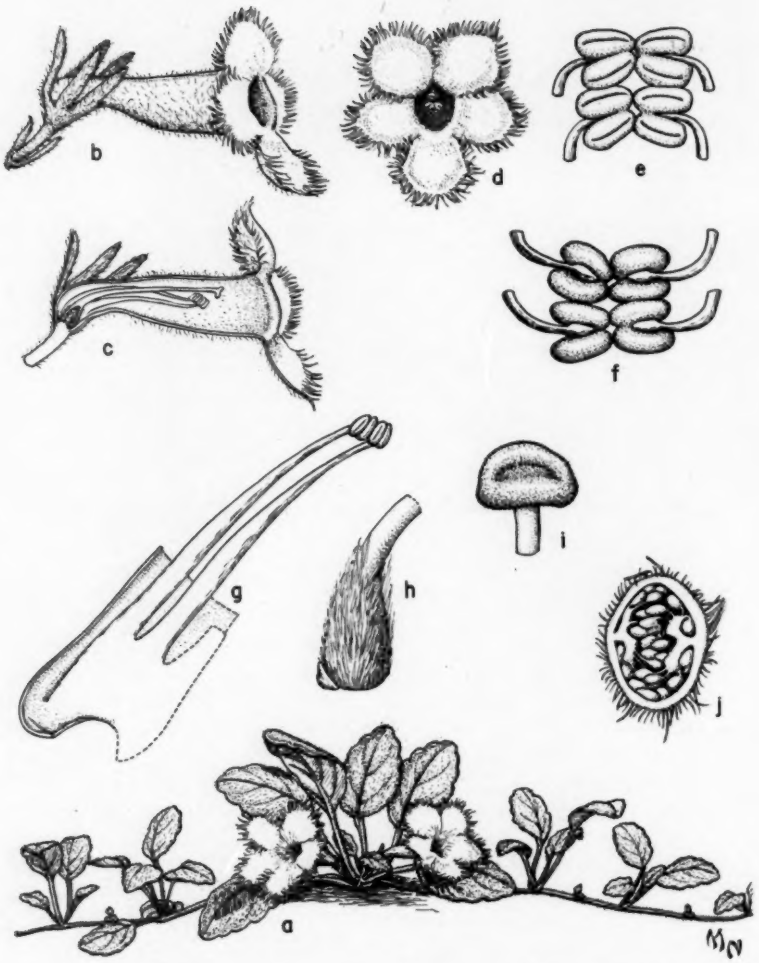
William J. Dress

19. Studies in the genus Ceratostigma

by

G. H. M. Lawrence

Published by The Bailey Hortorium
of The New York State College of Agriculture
at Cornell University
(Mailed at Ithaca Post Office to regular list)
July 15, 1954



121. EPISCIA DIANTHIFLORA. a, habit ×½; b,c,d, flower, lateral view, vertical section and face view ×1; e,f, anthers, ventral and dorsal views ×6; g, insertion of stamens ×3; h, ovary and disk-gland ×6; i, stigma ×6; j, ovary, cross-section ×10.

ARTICLE 17.
SOME CULTIVATED GESNERIACEÆ AND HYBRIDS.

By H. E. Moore, Jr.

Study of the cultivated genera and species of Gesneriaceæ for Hortus Third reveals some necessary changes in name, introduces two new species not previously described and has brought together a considerable body of information on hybrids described in the literature.

Intensified interest in hybridization of the family has suggested that a summary of the more important hybrids, with nomenclature brought into accord with current International Rules, would serve as an historical background and provide a basis of reference for names now available. In the following paragraphs, notes on taxa in the various genera together with mention of some interspecific hybrids are arranged alphabetically by genera and followed by a section on intergeneric hybrids. Abbreviations for herbaria are those of Index Herbariorum (Reg. Veg. ii, Ed. 2, 131, 1954). Plates are the work of Miss Mitsu Nakayama. Living material or seeds of several species discussed has been kindly provided by Mrs. Peggie Schulz of Minneapolis, Minnesota and Mr. R. G. Wilson of South Miami, Florida.

It may be noted that dates used here for the parts of Hanstein's monographic series on the Gesneriaceæ in Linnaea differ from those often given. The month and year of actual publication for the first three parts are taken from covers of Linnaea bound in copies at the Cornell University Library, the year for the fourth part from Beiblatt zur Flora 1865, 21 (Repertorium der periodischen botanischen Literatur vom Beginn des Jahres 1865 an). They are as follows with actual date of publication in brackets: Linnaea, xxvi, 145-216 (1853) [April 1854]; xxvii, 693-785 (1854-55) [August 1856]; xxix, 497-512 (1857-58) [February 1859] and 513-592 (1857-58) [April 1859]; xxxiv, 225-462 (1865-66) [1865]. Fritsch's treatment of the Gesneriaceæ in Engler & Prantl, Die Natürlichen Pflanzenfamilien iv, 3b, variously dated 1893, 1894 or 1895, appeared in two parts, pages 133-144 (1893), pages 145-185 (1894).

ACHIMENES

† **Achimenes Ehrenbergii,** (Hanst.) comb. nov.

Eucodonia Ehrenbergii, Hanst. in Linnaea, xxvi, 201 (1854).

Mandirola lanata, Planch. & Lind. ex Lem. in Ill. Hort. iii, t. 80 (1856).

Scheeria lanata, (Planch. & Lind. ex Lem.) Hanst. in Linnaea, xxvii, 757 (1856).

Koernickea lanata, (Planch. & Lind. ex Lem.) Regel, in Ind. Sem. Hort. Petrop. 1857, 48 and in Gartenfl. vii, 309 (1858).

Achimenes lanata, (Planch. & Lind. ex Lem.) Hanst. in Linnaea, xxxiv, 434 (1865).

The identity of *Achimenes lanata* with *Eucodonia Ehrenbergii* has been known since Hanstein transferred Eucodonia to Achimenes in 1865 but the earlier epithet has not yet been transferred. This handsome species is cultivated in collections today and should bear its rightful epithet.

Achimenes hybrids

Early interspecific crosses and some of the fancy-named variants require an article by themselves and are omitted here. Intergeneric crosses are discussed under ×Eucodonopsis.

COLUMNEA

Several hybrid Columneas are known in cultivation and at least one, *Columnea* ×*Banksii*, is offered in the trade. Another goes under the invalid name *Columnea kewensis*. This name appears on page 32 of the List of Seeds, Royal Botanic Garden, Edinburgh, Scotland for 1934 without description and no later account of it has been found. It is possible that plants going by this name represent a cross between *Columnea glabra* and *C. Schiedeana* that was made at the Botanic Gardens of Cambridge University and at the Royal Botanic Gardens, Kew, England and mentioned in the discussion of *C.* ×*Banksii* in The Gardeners' Chronicle.

Columnea ×**Banksii,** Lynch, in Gard. Chron. ser. 3, lxiii, 64, fig. 27 (1918) [*C. Oerstediana*♂ × *C. Schiedeana*♀].

Columnea ×**Lemoinei,** Garnier, in Rev. Hort. lxxxvi, 134 (1914) [*C. glabra*♂ × *C. magnifica*♀].

Columnea ×**vedrariensis,** Hort. Vilm. ex Mottet, in Rev. Hort. xc, 168 cum icon. (1918) [*C. magnifica*♂ × *C. Schiedeana*♀].

Columnea ×**Vilmoriniana,** Meunnissier, in Rev. Hort. xcviii, 15, cum icon. (1926) [*C. gloriosa* 'Superba'♂ × *C.* × *vedrariensis*♀].

DIASTEMA

In The Gloxinian, November-December 1952, page 19, Mrs. Ruth De Young reported on a species of Diastema cultivated by her. A specimen was determined as *Diastema pictum*, Regel and agrees with one of two taxa bearing that name. Unfortunately the earliest use of *Diastema pictum* was that of Regel and Walpers for what is now known as *Kohleria bogotensis*, (Nichols.) Fritsch and not for the plant at present cultivated in this country. It becomes necessary, therefore, to have another name for it and the following is proposed for reasons to be considered below.

† **Diastema vexans,** nom. nov.

Diastema pictum, Regel (*picta*), in Gartenfl. xxxvii, 240 (1888), non *Diastema pictum,* (Benth. ex Hook.) Walp. Annales i, 472 (1848-49).

The combination *Diastema pictum,* (Benth. ex Hook.) Regel is said by Index Kewensis to have been published in Flora, xxxi, 250 (1848). In actuality no formal combination was made there, Regel having stated only that the plant described by Hooker as *Achimenes picta* belonged to Diastema and that he was leaving the "Special-namen" for it. His error in so doing was admitted the following year in Flora, xxxii, 182 (1849) when he placed *Achimenes picta* in a separate genus, Giesleria, and noted that he had falsely reckoned it a Diastema. Under Article 42 of the International Code of Botanical Nomenclature it might be argued that this did not constitute valid publication of the combination *D. pictum,* (Benth. ex Hook.) Regel, and that there is no bar to the use of the later *Diastema pictum,* Regel which applies to the plant now cultivated under that name. Unfortunately the combination *D. pictum,* (Benth. ex Hook.) Walp. (= *Kohleria bogotensis*) appears to have been validly published by Walpers in his Annales where he gave a brief diagnosis of Diastema, Benth. and then listed two species as *D. ochroleuca* et *picta* (Achimenes Auct.), thus making the later *Diastema pictum,* Regel a homonym.

In Engler's Botanische Jahrbücher, l, 409 (1913), Fritsch reviewed the situation but concluded that since *Diastema pictum,* (Benth. ex Hook.) Walp. applied to a Kohleria there was no objection to the use of the later *Diastema pictum,* Regel. Under the current International Code of Botanical Nomenclature such action is not permissible. Fritsch also noted the occurrence of the very similar *Diastema Lehmannii,* Regel described a year after *Diastema pictum,* Regel and both based on material from Colombia. Authentic specimens of the two taxa were studied by him and although he expressed doubt as to their distinctness he recognized certain differences and failed to combine them.

It may be suggested that the name *D. Lehmannii* be taken up for the material currently in cultivation but the possibility exists that future studies will show this to be a taxon worthy of recognition. Those who work with plants in cultivation will assert that it is easier to place one taxon in synonomy of another if adequate studies indicate the validity of such action than to unravel the confusion that often develops when a cultivated plant is found to be erroneously named. For that reason the epithet *vexans* (from the Latin vexare meaning to molest or annoy) is proposed in full cognizance of its possible identity with *D. Lehmannii.*

EPISCIA

An Episcia said to be native in the region of Acapulco in the state of

Guerrero, Mexico, has recently flowered in the greenhouses of Fantastic Gardens, South Miami, Florida. Mr. R. G. Wilson recognized that it represented a species hitherto unknown in cultivation and further checking indicates that it has not been described. At first glance the deeply fringed corolla-lobes resemble the petals of some species of Dianthus and from this resemblance the name *Episcia dianthiflora* is coined. The exact locality from which the original stock came is not known. Material cultivated in the United States was obtained by Mr. Wilson from Mr. Mario Oguri who collected it in the wild. It is the most northerly representative of a primarily Central and South American genus.

Episcia dianthiflora differs from *E. cupreata*, (Hook.) Hanst., *E. fulgida*, (Lind.) Hook. f., and *E. lilacina*, Hanst. in having white flowers. A faint purple spotting is present inside the corolla-tube and about the base and short spur inside but appears only as a tinge through the corolla. The green leaves and slender stolons are somewhat similar to those of its close relative, *E. punctata*, (Lindl.) Hanst. as are the solitary flowers and fimbriate corolla-lobes. It differs from the latter in having smaller obtuse leaves and in the immaculate, glistening, white corolla-lobes. The compact habit and striking flowers make it an attractive addition to a genus already popular in cultivation.

† **Episcia dianthiflora,** H. E. Moore and R. G. Wilson, spec. nov. Figs. 121-122.

Herba perennis stolonifera totaliter pilosula caulibus brevibus: folia opposita elliptica crenata 4 cm. longa 2.5-3 cm. lata: flores solitarii axillares albi intus purpureo-maculati pedunculis brevibus bibracteatis: lobi calycis lineari ciliati 10 mm. longi: corollæ tubus elongatus 3 cm. longus ventre ampliatus lobis patentibus fimbriatis 12-13 mm. longis 12-14 mm. latis: disci glandula solitaria.

A perennial nearly acaulescent herb with densely pilose green stolons; the stolons bearing 2 opposite or alternate reduced leaves with blades ca. 3 mm. long and red petioles 2-3 mm. long between the rooting and stem-producing nodes: leaves opposite, congested, the petioles green, densely pilose, 3-4 cm. long; blades elliptic, obtuse, 4 cm. long, 2.5-3 cm. wide, green and densely appressed-pilose above with 3 pairs of slightly impressed veins, the midribs and base of the lateral veins reddish, pale crystalline green with conspicuous appressed-pilose green veins below, the margins crenate with 4-6 shallow teeth on each side: flowers glistening white, solitary, axillary, on short bibracteate pedicels 6-8 mm. long, the bracts linear, 5-7 mm. long; calyx of 5 linear, equal, entire, green, pilose and ciliate lobes 10 mm. long, 1 mm. wide; corolla-tube faintly spotted with purple within and with a ring of glandular hairs inside the throat, the spur violaceous within, obliquely horizontal in the calyx, dorsoventrally compressed, 4 mm. wide at base, 9 mm. wide at throat, 3 cm. long on the dorsal side, the dorsal side straight and slightly keeled, the ventral side slightly inflated; corolla-lobes 5, spreading, glabrous, fimbriate with slender teeth to 6 mm. long, the upper and lateral lobes 12 mm. long, 14 mm. wide, the lower lobe 13 mm. long, 12 mm. wide; stamen-

filaments white, glabrous, the white anthers united in a square; disk of a solitary, pale, sometimes bilobed, dorsal gland; style white, glabrous, stigma white, stomatomorphic; ovary densely pilose, the placentas bearing stalked ovules toward the tips of the inner surface.

Cultivated at Fantastic Gardens, South Miami, Florida, February 25, 1954, *H. E. Moore, Jr. 6824* (BH, type).

122. EPISCIA DIANTHIFLORA. Type plant at Fantastic Gardens, South Miami, Florida.

KOHLERIA

Some of the cultivated forms and hybrids of various species of Kohleria have been considered in a previous article[1]. The following notes and transfers are concerned with species in cultivation and in the wild and with a series of named hybrids that, for the most part, have not been transferred to the genus.

Kohleria lanata, Lem. in Ill. Hort. viii, t. 287 (1861).

Gesneria? maculata, Moç. & Sessé ex DC. Prodr. vii, 532 (1838) and Pl. N. Hispan. Ed. 1, 97 (1887-90); Ed. 2, 91 (1893) non *Gesnera maculata,* Mart. Nov. Gen. & Sp. iii, t. 215 (1829) nec *Kohleria maculata,* Morton ex Standley, Fl. Costa Rica, 1180 (1938).

?Kohleria longipedunculata, Hanst. in Linnaea, xxxiv, 441 (1865).

[1] Baileya, i, 89-101 (1953).

The name *Kohleria lanata* appears to be the earliest that can be properly applied to specimens collected beyond the village of Acahuizotla on the highway to Acapulco in the state of Guerrero, Mexico, August 20, 1948 (*Moore & Wood 4685*, BH, GH, US). Mr. C. V. Morton of the United States National Herbarium suggested that these plants might be referable to *Gesneria? maculata*, Moç. & Sessé ex DC. Comparison of DeCandolle's description and a photograph of the tracing of the Moçino plate at the Conservatoire et Jardin Botaniques in Geneva with the specimens and with Lemaire's plate and discussion shows that all are the same. *Gesneria? maculata*, Moç. & Sessé ex DC. is a homonym of *Gesnera maculata*, Mart., therefore illegitimate, and its transfer is further barred by the quite different *Kohleria maculata*, Morton. Two additional collections from Mexico are referable here: Guerrero, Chilpancingo, Aug. 24, 1940, *L. A. Kenoyer s.n.* (GH); Chiapas, top of ridge back of Tonala, 1200-2500 ft., Aug. 10, 1895, *E. W. Nelson 2890* (GH).

Kohleria lanata was once cultivated in Belgium by Verschaffelt who received rhizomes from Ghiesbreght in 1859. It was from plants in the Verschaffelt greenhouses that Lemaire drew his description. Apparently the species has not persisted in cultivation but it is a desirable subject for re-introduction.

A second species based on cultivated material may also be synonymous here as indicated by Hanstein in remarks following his description of *Kohleria longipedunculata*. Except for differences in the calyx the description applies well but lacking authentic material it can only be referred here with question.

† **Kohleria Lindeniana,** (Regel) comb. nov. Fig. 123.

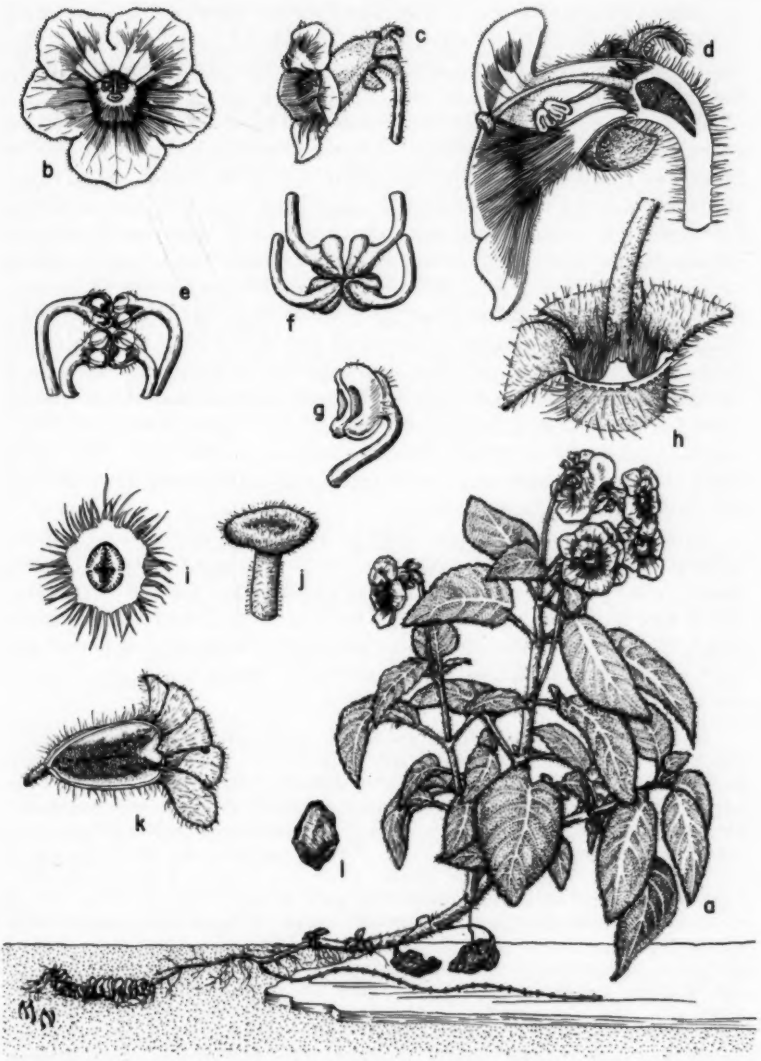
Tydæa Lindeniana, Regel, in Gartenfl. xvii, 257, t. 589 (1868).

Tydæa Lindenii, Regel? ex André, in Ill. Hort. xx, 183, t. 147 (1873).

Isoloma Lindenianum, (Regel) Nichols. Ill. Dict. Gard. ii, 201 (1885).

Gloxinia Lindeniana, (Regel) Fritsch, in Österreichische Botanische Zeitschrift, lxiii, 66 (1913).

Kohleria Lindeniana was first cultivated in Europe during the late 1860's but has only recently appeared in the United States where it has been erroneously listed by dealers as *Gesneria Lindenii*. Examination of living plants at Cornell University greenhouses reveals that the flowers have five distinct pale glands in the disk as shown in Fig. 123h. Fritsch, who studied living material in the Botanic Garden at Graz, described the disk as a thin somewhat notched ring and on that basis transferred the species to Gloxinia. It differs from Gloxinia, however, in many particulars, notably in the disk as seen in the present material, in the differently shaped corolla and lack of a prominent pouch on the lower side of the corolla-



123. KOHLERIA LINDENIANA. a, habit ×½; b,c, flower, face view and side view ×1; d, flower, vertical section ×2; e,f, anthers, ventral and dorsal views ×4; g, anther, lateral view ×5; h, apical portion of ovary and disk-glands ×5; i, ovary, cross-section ×4; j, stigma ×5; k, capsule ×1; l, seed ×20.

tube, in the manner in which the anthers are united and in the lack of prominent sulci on the calyx-tube. The chromosomes have been counted from root-tip smears and reported as 2n = 26 by Owen Rogers, Cytological Studies and Genetic Relationships in the Gesneriaceae (Thesis, Cornell University, 1954).

Comparison with species of Kohleria § Tydæa shows a pronounced resemblance to such species as *Kohleria amabilis*, (Planch. & Lind.) Fritsch and *K. bogotensis*, (Nichols.) Fritsch in habit, leaves, calyx, shape of the corolla and in the anthers. From all the species of this section it differs in the white and violet corolla with very short tube scarcely exceeding the lobes, in the very thin glands of the disk, the stomatomorphic stigma, the nearly completely inferior ovary and in the peculiar dehiscence of the capsule which splits along the dorsal side rather than opening by two apical valves. Nor does it agree with any of the other sections of the genus currently recognized. For that reason a new section, Kohleria § Gloxinella is proposed to contain it[2]. In some other respects it differs from those species seen in living collections. Unlike *K. amabilis* and *K. bogotensis*, it produces numerous slender stolons in addition to the typical fleshy rhizome and appears to be perfectly self-fertile, every flower setting seed under normal circumstances.

It is unfortunate that two taxa in Kohleria have been named for Linden, each having a distinctive termination. *Kohleria Lindenii*, (Hanst.) Hanst. is a red-flowered species from Colombia that has not been cultivated and it should not be easily confused with *Kohleria Lindeniana* which is one of the most distinctive species in the genus and one of the most satisfactory in cultivation. An amplified description is provided to embody those characters not previously noted.

Roots fibrous from a slender rootstock which produces both elongate, bracteate stolons and thickened, scaly rhizomes about 3 cm. long, 1 cm. in diameter, the fleshy, greenish-brown scales 7-8 mm. wide, 4-5 mm. high and 1-2 mm. thick: stems herbaceous, branched, erect or ascending, 2-3 dm. long, somewhat succulent, reddish and copiously white-pilose with several-celled hairs 1-2 mm. long: leaves opposite on reddish, pilose petioles 1.5-2.5 cm. long, the blades 4.5-7 cm. long, 3-4 cm. wide, subfalcately ovate-elliptic with excentric pale midrib, oblique base, acute apex and crenate margins; upper surface of blade densely pilose with erect, translucent, several-celled hairs of two lengths, the longer 2 mm. long, the shorter 0.5-1 mm. long, green with conspicuous pale green or nearly white midrib and 5-9 pairs of pale lateral veins that are impressed when dry, the lower surface densely pilose, very pale green or almost whitish with prominent, often reddish veins: peduncles solitary, axillary, ebracteate, pilose, often reddish, 2.5-5 cm. long at anthesis, elongating in

---

[2] **Kohleria § Gloxinella,** sect. nov.

Kohleriæ sectioni Tydææ similis habitu foliis calyce corolla infundibulari antheris sed differt coloribus et tubo corollæ brevo glandulis tenuioribus stigmato stomatomorpho fructu longitudinaliter dehiscente. Species typica, *Kohleria Lindeniana.*

fruit: flowers nodding, the calyx-tube green, pilose, about 5 mm. long at anthesis, the green calyx-lobes hirsute, 3-nerved, obovate, entire, recurved, 8 mm. long, 4 mm. wide: corolla oblique in the calyx, appressed-pilose outside, glabrous within, white outside except for a yellowish cast dorsally on the base of the tube, white inside with violet blotching over the three lower lobes extending halfway into the tube on the lower side and in broad bands onto the 2 upper lobes; corolla-tube 10 mm. long, obliquely infundibuliform, slightly gibbous on the dorsal side at the base; corolla-lobes rounded with glandular-ciliate margins, the 2 upper 5 mm. long, 10 mm. wide, erect or recurved, the 3 lower 7 mm. long, 10 mm. wide, spreading; stamens inserted at the base of the corolla-tube, the yellowish filaments glabrous, 5 mm. long, the anthers 1.5 mm. long, united by the tips of the slender pilose connectives and upper margins of the locules, sagittate at the base with yellow, semi-lunar, parallel, discrete locules dehiscing longitudinally in the center, staminode 3 mm. long; disk of 5 nearly discrete white glands 0.5 mm. high, joined by a narrow, scarcely visible ring of tissue at their bases; ovary ⅚ inferior, the superior portion densely hirsute; style white, pilosulous, 9 mm. long, the stigma stomatomorphic and sometimes obscurely bilobed: capsule 12-13 mm. long, dehiscing along the dorsal side and with a briefly 2-valved apex; seeds very numerous, spirally striate.

Native in Ecuador?

† **Kohleria magnifica,** (Planch. & Lind.) comb. nov.

Locheria magnifica, Planch. & Lind., Linden Catalogue 1855, 3 and in Fl. des Serres, x, 117, t. 1013 (1855).

Achimenes magnifica, (Planch. & Lind.) Lindl. in Gard. Chron. xvi, 116 (1856).

Tydæa magnifica, (Planch. & Lind.) Hanst. in Linnaea, xxxiv, 440 (1865).

Among the many sorts of Achimenes offered in commerce is one with handsome blue flowers that is occasionally listed as *Achimenes magnifica*. It appears to be a cultivar of *Achimenes longiflora*, DC. and is sometimes considered the same as *Achimenes longiflora* 'Major'. If considered distinct it should be listed as *Achimenes longiflora* 'Magnifica' or as *Achimenes* 'Magnifica'.

The *Achimenes magnifica* of botanists is a quite different red-flowered species similar in many respects to *Kohleria ocellata*, (Hook.) Fritsch. The presence of distinct glands in the disk of flowers taken from specimens agreeing well with the original plate and from the same geographical region verifies the relationship and the species is here transferred to the same genus. Material from which *Kohleria magnifica* was originally described was sent to Linden from the region of Popoyán in Colombia by Triana and was grown at Brussels. Although the species served as a parent of hybrid strains such as the early *Kohleria* ×*Ortgiesii* it does not appear to have persisted in cultivation in Europe or to have been cultivated in the United States.

When more information and collections become available it may be found that *Kohleria ferruginea*, Fritsch [*Tydæa Warscewiczii*, Regel not *Kohleria Warszewiczii*, (Regel) Hanst.] should be reduced to the synonymy of *Kohleria magnifica*. Adequate distinctions between the two species are not easy to find and at best depend largely on such variable characters as the number of flowers on the common peduncle, the relative prominence of dark lines on the limb of the corolla and differences in the surface of the leaves as they are illustrated.

The following collections are referable here: Colombia: Dept. El Cauca; on Rio Palacé [Puracé?] and Huaugubio in highlands of Popoyán, 1600-2000 m., Feb.-May, 1885, *Lehmann BT 676* (GH), forests of Rio Palacé, 1500-1800 m., Feb.-Mar., 1884, *Lehmann BT 677* (F, GH, NY), on Rio Palacé, *Lehmann BT 1236* (F, GH), wooded vale west of Rio Sucio, Cauca Valley, 1500-1600 m., June 27, 1922, *Pennell & Killip 7283* (NY).

Kohleria hybrids

The genus Kohleria has been extensively hybridized in cultivation in the past and as interest in the Gesneriaceæ continues to grow it is to be expected that some of the older crosses will be reproduced or that still existing hybrid clones will come into the United States. In order to provide the hybridist with a guide to past work and suitable names for some of the potential crosses the known named hybrids are listed here with transfers made to Kohleria when necessary. It should be borne in mind that under current International Codes of Nomenclature all offspring of a cross between two species must bear the same "specific" name and that horticulturally important clones may be designated with fancy names to distinguish them further as in *Kohleria* ×*pulchra* 'Argyroneura'.

Kohleria ×dubia, Fritsch, in Engler Bot. Jahrb. liv, beibl. 119, 41 (1916).

The exact status of this hybrid is unknown. Fritsch thought that *Kohleria bogotensis* was probably one of the parents. It had been grown as *Isoloma* ×*giganteum* and is perhaps synonymous with *Kohleria* ×*gigantea* though differences between the plants described and those illustrated by Planchon were noted by Fritsch.

Kohleria ×gigantea, (Planch.) Fritsch, in Engler & Prantl, Nat. Pflanzenfam. iv, 3b, 178 (1894) [*K. bogotensis* × *K. Warszewiczii*].

Tydæa ×*gigantea*, Planch. in Fl. des Serres, x, 21, t. 975-976 (1855).

Tydæa ×*Decaisneana*, Regel, in Gartenflora, vii, 374 (1858).

Tydæa ×*hybrida*, Hort.

Perhaps through a misinterpretation of the manner in which the name

of this hybrid first appeared in print—as TYDÆA (hybrid.) GIGANTEA—the name *Tydæa hybrida* has frequently been used in horticulture for this cross. The name has no botanical standing and its use should not be continued. If plants of this lineage are still in cultivation they should be referred to as *Kohleria ×gigantea*.

Tydæa ×Decaisneana of Regel must also be considered synonymous with *K. ×gigantea* since it had the same parentage. In Engler's Botanische Jahrbücher, liv, beiblatt 119, 32 (1916), Fritsch described cultivated material grown under the name *Tydæa ×Decaisneana* as a species, *Kohleria Behnickii*. From the description it appears rather to be a hybrid, perhaps of the *Kohleria* 'Sciadotydæa Hybrid' type but its status cannot be determined without authentic material.

As early as 1857, fancy-named forms of *Kohleria ×gigantea* crossed with other species said to have been Achimenes (but from the content of the article actually Kohlerias) were illustrated in Neubert's Deutsche Magazin für Garten- und Blumenkunde, x, 4-5. A series of five forms was illustrated and two additional forms were described without figures. For the most part they resemble the original *Kohleria ×gigantea* closely but differ in the amount of yellow and in the pattern of red on the limb. Apparently none of these sorts has persisted.

At least two later cultivars that appear to be forms of this hybrid have been illustrated and named. In Gartenflora, xxxiv, 177-178 (1885), the name *Tydæa hybrida nana* is applied to dwarf plants originated through selfing of what is presumed to have been *K. ×gigantea* in the greenhouses of Haage & Schmidt, at Erfurt, Germany. As illustrated and described the stems rarely exceed 10 inches in height and the plants are floriferous. The same illustration is reproduced in Wiener Illustrierte Garten-Zeitung, x, 127 (1885). Should this clone or cultivar still exist it may be referred to as *Kohleria ×gigantea* 'Nana'.

In Die Gartenwelt, xxxii, 442-443 (1928), Vogel discussed and illustrated plants that may also be of *K. ×gigantea* stock. From the photograph on page 443 it is impossible to be sure whether the plants shown are truly *K. ×gigantea* or whether, as seems more likely, they represent one of the forms of the *Kohleria* 'Eriantha Hybrids'. The eight fancy-named forms discussed in the same article similarly cannot be placed. Vogel used the name *Tydæa hybrida grandiflora* which again has no standing and should not be continued. Presumably this was the same strain that served as a parent, along with *Kohleria eriantha*, in the production of today's 'Eriantha Hybrids' as noted in Baileya, i, 100 (1953).

† **Kohleria ×Hansteinii,** (Ortgies) comb. nov. [*K. ×gigantea* × *K. ocellata*].

Tydæa ×Hansteinii, Ortgies, in Gartenfl. vii, 65, t. 218 (1858).

Variation in the patterning of flowers led Ortgies to name four varieties that are no more than variants to be expected in such a cross. They may be indicated as cvs. 'Fulgida', 'Læta', 'Nigra' and 'Tigrina'. As a note to Ortgies discussion, Regel appended a name for another cross between *Kohleria magnifica* and *Kohleria ocellata* but no description was provided and the name, therefore, is invalid.

† **Kohleria ×Heeriana,** nom. nov. [*K. bogotensis* × *K. ferruginea*].

Tydæa ×Regelii, Heer, in Gartenfl. v, 97, t. 154 (1856) not *Kohleria Regelii,* Hanst. in Linnaea, xxxiv, 442 (1865).

The use of Heer's epithet is precluded by *Kohleria Regelii,* Hanst. This name was purely a provisional name given to *Kohleria elongata,* Regel by Hanstein and as such is illegitimate. It was validly published, however, so a new name is necessary for this hybrid. The original parents were given as *Tydæa picta* (*K. bogotensis*) and *Tydæa Warscewiczii* (*K. ferruginea*). Three variants may be listed as *Kohleria ×Heeriana* 'Argentea', 'Chlorophylla' and 'Erythrichina'.

† **Kohleria ×Hillii,** (Regel) comb. nov. [*K. bogotensis* × *K. hondensis*].

Tydæa ×Hillii, Regel, in Gartenfl. iii, 73 (1854).

Regel did not indicate that this was a hybrid. It was known to him only from plants of English origin grown in Switzerland. Hanstein, however, in Linnaea, xxvii, 776 (1856) gave the parentage noted above, based on information contributed by Seemann in Botany of the Voyage of the H.M.S. Herald, 185 (1854).

† **Kohleria ×Lenneana,** (Ortgies) comb. nov. [*K. ×Hillii* × *K. ocellata*].

Tydæa ×Lenneana, Ortgies, in Gartenfl. vi, 2, t. 182 (1857).

Two named variants may be designated as cvs. 'Rutilans' and 'Viridis'.

Kohleria ×Lucianii, (André) Fritsch, in Engler & Prantl, Nat. Pflanzenfam. iv, 3b, 178 (1894). [*Kohleria digitaliflora* × *Kohleria* species (*ocellata?*)].

Sciadocalyx ×Lucianii, André, in Ill. Hort. xxi, 151, t. 182 (1874).

The hybrid referred to here is very similar to some now cultivated in the United States as Tydæa hybrids. The parentage must be left with a question. According to André it was a cross between *Sciadocalyx digitaliflora,* Lind. & André and *Tydæa pardina,* Lind. & André. The latter is extremely close to and may be synonymous with *Kohleria ocellata* but its status cannot be determined from available information. André stated that his material could not be *K. ocellata* because the latter had scabrous

leaves and 1-flowered peduncles and he furthermore described the corollas as glabrous. The plant illustrated, however, is so similar to *Kohleria ocellata* and the description so lacking in essential detail that one may suspect a lack of careful study on the part of André, as was apparent when he described *Tydæa Ceciliæ*.

† **Kohleria ×Ortgiesii,** (Hort. ex Planch.) comb. nov. [*K. magnifica* × *K. Warszewiczii*].

Tydæa ×Ortgiesii, Hort. ex Planch. in Fl. des Serres, xi, 213, t. 1181-1182 (1856).

The plate illustrating this hybrid is labelled with the epithet Ortgiesiana but the shorter name was used in the text. Here also belongs *Tydæa Meyendorfii* var. *rubra*, Regel, Gartenflora, vii, 374 (1858) which has the same parentage, and *Kohleria* 'Vesuvius' (*Tydæa* 'Vesuvius') described and illustrated in Revue Horticole, xl, 151 (1868).

† **Kohleria ×pulchra,** (Heer) comb. nov. [*K. bogotensis* × *K.* ×*Hillii*].

Tydæa ×pulchra, Heer, in Gartenfl. v, 98, t, 155 (1856).

Three varieties representing slight variation in the progeny of this cross were named by Heer. They may be indicated as cvs. 'Argyroneura', 'Chloroneura' and 'Concolor' should the occasion for their use arise. The *Tydæa* 'Argyroneura' illustrated by Dupuis in Revue Horticole, xxxi, 24 (1859) and cited by Index Londinensis is a poor representation of the first. The remaining two were illustrated on the original plate.

† **Kohleria ×Rossiana,** (Ortgies) comb. nov. [*K. bogotensis* × *K. ocellata*].

Tydæa ×Rossiana, Ortgies, in Gartenfl. vi, 1, t. 181 (1857).

Hybrid progeny appeared in two forms, cv. 'Concolor' and cv. 'Lucida', the latter having more yellow on the lower lobes of the corolla than the former.

Kohleria Straussiana, Fritsch, in Engler Bot. Jahrb. liv, beibl. 119, 34 (1916).

Although this was described as a species from plants cultivated at the Botanic Gardens of Berlin and Graz it appears to be suspiciously close to plants referred to as *Kohleria* 'Eriantha Hybrids'. Authentic material, if such still exists, may help to determine its status.

In addition to the named hybrids listed above there are several for which parentage is not given or for which the names were not published in good form. One of these, *Kohleria* 'Eeckhautii' was described and figured as *Tydæa ×Eeckhautii* in Flore des Serres, xii, 17 t. 1190 (1857).

From the illustration one may assume that *K. bogotensis* had entered the cross but no parents were given by Van Houtte. Ortgies, in Gartenflora, vi, 350 (1857) suggested *K.* ×*gigantea* and *K. magnifica* as possible parents. Another, called *Tydæa pyramidalis multiflora* by Gottholdt in Gartenflora, x, 193, t. 328 (1861), represents a cross between *Kohleria Trianæ*, (Regel) Hanst. and *Kohleria* 'Meyerbeer', a hybrid of undetermined parentage illustrated in Flore des Serres, xiii, 3, t. 1291 (1858) [1860]. The plant illustrated as *Tydæa venosa*, Hort. ex Lescuyer, L'Horticulteur Français ser. 2, iii, 248, t. 20 (1861) may also represent a hybrid. But for the scarcely ampliate corolla with the tube yellow inside, it might be a variant of *Kohleria amabilis*. In the same article Lescuyer lists seven fancy named Kohlerias.

Series of fancy-named cultivars have been illustrated in Flore des Serres, xiii, 3, t. 1291 (1858), Illustration Horticole, v, t. 160 (1858) and vi, t. 198 (1859). Many of these are patently derived from *Kohleria amabilis* and may be included in *Kohleria* 'Amabilis Hybrids'.

Bellair and Saint-Léger, in Les Plantes de Serres, 954 (1899), list and describe briefly 34 fancy-named variants or hybrids. Vogel, in Die Gartenwelt, xxxii, 442 (1928), gave brief descriptions of another 8 cultivars selected from stocks of '*Tydæa hybrida grandiflora*' and previously mentioned on page 385 of this article. Several others are mentioned in The Garden xxiv, 194 (1883) and in the same journal lv, 348-349, t. 1223 (1899) *Kohleria* 'Vaca de Castro', a cultivar with fringed corolla-lobes, is illustrated in color. Another fringed sort mentioned by Beddome in Journal of the Royal Horticultural Society, xxxiii, 90 (1908) is *Kohleria* 'Marquis de Guadiano'.

RECHSTEINERIA

The name Rechsteineria, Regel has been presented to the International Botanical Congress for conservation over four earlier names of Rafinesque and it is proposed to use it on the assumption that it will eventually be accepted. If the proposal is rejected then an alternative name must be re-instated at a later date. Relatively few species are cultivated in the United States and these often under the names Corytholoma or Gesneria. The following synonymy may serve to coordinate the several names in use.

Rechsteineria, Regel, in Flora, xxxi, 247 (1848) [Apr.] nomen conservandum propositum.

Gesnera, Mart. Nov. Gen. & Sp. iii, 27 (1829) not *Gesneria,* L. Sp. Pl. ii., 612 (1753), Gen. Pl. Ed. v, 267 (1754).

Allagophylla, Raf. Fl. Tellur. ii, 33 (1836) [1837].

Megapleilis, Raf. op. cit. 57.

Styrosinia, Raf. op. cit. 95.

Tulisma, Raf. op. cit. 98.

Corytholoma, (Benth.) Decne. in Rev. Hort. xx, 466 (1848) [Dec.]

Dircæa, Decne. l. c.

Cultivated plants belonging to this genus and especially to the section Dircæa are apparently variable and the extent of hybridization is not yet clear. The most commonly cultivated species is often listed under an erroneous name and the best name that can be provided for it with present knowledge of the genus follows.

Rechsteineria cardinalis, (Lehm.) Kuntze, Rev. Gen. Pl. ii, 474 (1891).

Gesneria cardinalis, Lehm., Neue Allgem. Deutsche Gart. & Blumenzeit. (Hamburg) vi, 454 (1850).

Dircæa cardinalis, (Lehm.) Regel, in Gartenfl. ii, 35 (1853).

Corytholoma cardinalis, (Lehm.) Fritsch, in Engler & Prantl, Nat. Pflanzenfam. iv, 3b, 180 (1894).

Gesneria macrantha, Hort. not *G. macrantha*, Spreng. Syst. ii, 839 (1825).

Rechsteineria hybrids

Intergeneric hybrids are discussed under the name ×Gloxinera. The following interspecific hybrid has been documented.

Rechsteineria ×artefacta, Fritsch, in Engler Bot. Jahrb. liv, beibl. 119, 38 (1916) [*R. confertifolia* × *R. splendens*].

SINNINGIA

The genus to which the 'Gloxinia' of horticulture belongs is represented in cultivation by several species other than *S. speciosa*, among them one that appears to be undescribed. This species, described here as *Sinningia eumorpha*, has been listed in catalogues of dealers as *Sinningia Maximiliana*. Seed imported into the United States was obtained from Mr. Harry Blossfeld of São Paulo, Brazil. Mr. Blossfeld has noted (in correspondence) that the original stock is believed to have come from the state of Santa Catarina, Brazil, where plants from the wild were probably cultivated by German settlers. He also called attention to the description and illustration of plants determined as *Sinningia Maximiliana* in Hoehne, Kuhlmann & Handro, O Jardim Botânico de São Paulo, 596, t. 38A (1941) with which his material agreed. The Botanic Garden plants came from the Serra de Botucatú in the southeast of the state of São Paulo. Unfortunately no information on the disk is included in the description but in

other characters and in general aspect as seen in the photograph, plate 38A, the plants are almost surely to be referred here. Hoehne et al. stated that the plants are epiphytic or grow on rocks in the wild state, flowering from December to February.

Sinningia eumorpha appears to belong to § Hemiloba but differs from *S. Maximiliana*, (Hanst.) Benth. & Hook. ex Fritsch and *S. macrophylla*, (Nees & Mart.) Benth. & Hook. ex Fritsch in its solitary, white or only lavender-flushed flowers and above all in the disk that is reduced to 2 prominent and 3 rudimentary glands or more often to 2 glands alone.

† **Sinningia eumorpha,** spec. nov. Fig. 124.

Herba perennis, totaliter pilosula caulibus brevibus 3.5 cm. longis: folia opposita cordato-ovata crenata 3-12 cm. longa 2.5-7 cm. lata: flores solitarii axillares nutantes 5 cm. longi albi infra tubum luteo- et violaceo-lineati; lobi calycium ovato-lanceolati non alati 8-10 mm. longi; corollæ tubus elongatus superne ampliatus; disci glandulæ 2 posticæ.

A perennial herb, pilosulous in all vegetative parts: stems short, reddish, to 3.5 cm. long: leaves opposite, congested, the reddish petioles 1-8 cm. long, 3-5 mm. diameter, the blades 3-12 cm. long, 2.5-7 cm. wide, cordate-ovate, crenate, glossy green and densely pilosulous with 6-8 pairs of impressed veins above, pale green or sometimes red-flushed and pilosulous with prominent veins below: flowers solitary, axillary, nodding, on peduncles ca. 10 cm. long, the calyx-tube ca. 4 mm. long, neither winged nor margined, the calyx-lobes 8-10 mm. long, ovate-lanceolate, spreading; corolla white or faintly flushed with lavender and densely pilosulous outside, tube 3 cm. long on the upper side, 4 cm. long on the lower side, slightly gibbous at the base dorsally, inflated ventrally and slightly sigmoid dorsally, the inside with a red-dotted yellow band margined with violet on the lower side, lobes rounded, the upper recurved, 8 mm. long, 10 mm. wide, the lower spreading, 8 mm. long, to 15 mm. wide, lined with violet; anthers subcordate, coherent, bent downward and backward on the glabrous filaments as the style elongates; disk of 2 creamy-white dorsal glands with sometimes the rudiments of 3 others; free portion of the ovary densely red pilosulous, style white, pilosulous, stigma stomatomorphic: capsule ca. 10 mm. long, loculicidal, 2-valved with persistent style.

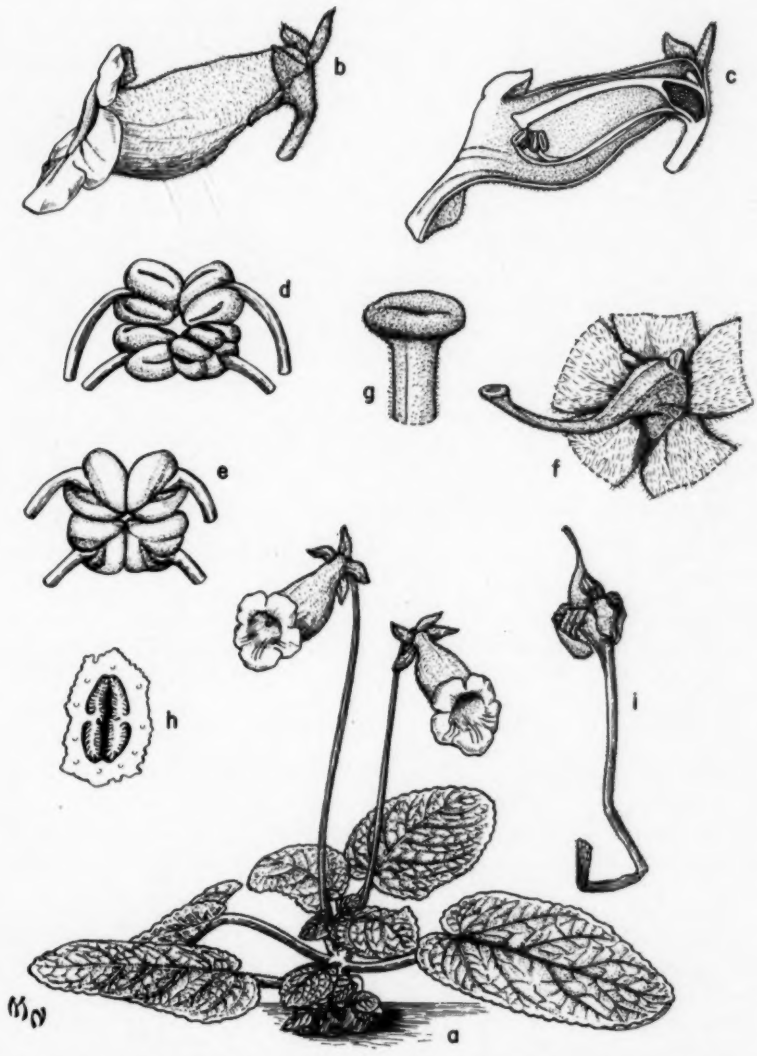
Cultivated at Cornell University, Ithaca, New York, October 1953, *H. E. Moore, Jr. 6470* (BH, type).

Sinningia hybrids

Sinningia speciosa, the 'Gloxinia' of horticulture, has been much hybridized but most of the hybrids have been between variants of the species itself. Intergeneric hybrids are listed under ×Gloxinera. Four interspecific hybrids appear in the literature and although none of them is known in cultivation in the United States they are listed for purposes of reference and information.

† **Sinningia ×cerina,** (Hort. Mountjoy ex Paxton) comb. nov. [*S. guttata* ♂ × *S. speciosa* 'Rubra' ♀].

Gloxinia ×*cerina*, Hort. Mountjoy ex Paxton, Mag. Bot. xi, 199 (1844).



124. SINNINGIA EUMORPHA. a, habit ×½; b,c, flower lateral view and vertical section ×1; d,e, anthers, ventral and dorsal views ×3; f, portion of gynœcium and disk-glands ×3; g, stigma ×6; h, ovary, cross-section ×4; i, capsule ×1.

The epithet cerina is taken up for this cross because of the more ample description and the name provided by the growers, Mountjoy & Sons, for Paxton's account which appeared in September, 1844. The same cross was produced in the garden of the Duke of Northumberland and was mentioned by Paxton in his article. During the same month, Lindley figured four variants of the Northumberland cross in Edwards' Botanical Register, xxx, t. 48 as garden variants of *Sinningia* (*Gloxinia*) *speciosa*.

† **Sinningia ×ornata,** (Van Houtte) comb. nov. [*S. conspicua*♀ × *S. speciosa*♂].

Rosanowia ×ornata, Van Houtte, in Fl. des Serres, xxiii, 149, t. 2423-24 (1880).

Progeny of this cross was similar to *Sinningia conspicua* in habit but in place of yellowish flowers had corollas of white lined with rose on the outside and in the yellow throat. Index Kewensis lists another and later name, *Rosanowia hybrida*, Nagy but reference to the place of publication in Wiener Illustrierte Garten-Zeitung, x, 128, 126 fig. 54 (1885) shows that Nagy used the term hybrida in a loose sense to label a figure of *Sinningia ×ornata* and that he apparently did not intend to propose a formal name for it.

† **Sinningia ×pronopes,** nom. nov. [*S. barbata* × *S. speciosa*].

Gloxinia × *Tapeinotes* hybr., Wiener Illustrierte Garten-Zeitung, xvii, 305, cum icon. (1892).

In *Sinningia ×pronopes*, the result of a cross between *S. barbata* (*Tapeinotes Carolinæ*) and a spotted 'Gloxinia', the inclined white corolla is very similar to that of *S. barbata* but has a reddish spotting on the limb derived from the second parent. The general habit as illustrated in the colored plate is rather that of *S. speciosa*.

Sinningia ×Youngeana, Marnock, in Floricult. Mag. i, 204, t. 14 (1836-37) [*S. speciosa*♂ × *S. velutina*♀].

In this, the oldest of the crosses recorded here, the subshrubby habit of the maternal parent was retained with infusion of violet into the flowers.

SMITHIANTHA

Species of Smithiantha appear to hybridize amongst themselves with relative ease and some if not much of the material in cultivation appears to be of hybrid origin. Two intergeneric crosses are discussed later as ×Eucodonopsis and ×Heppiantha. Two named interspecific hybrids of known or apparent parentage have been described and others of doubtful parentage are grown either in Europe or in the United States.

† **Smithiantha ×hyacinthina,** (Carr.) comb. nov. [*S. fulgida* × *?S. multiflora*].

Nægelia ×hyacinthina, Carr. in Rev. Hort. xlix, 29, fig. 4 (1877).

The parentage given by Carrière was *Nægelia fulgida* 'Concolor' and *Nægelia* 'Emma Lefevre'. From the description of the progeny it appears most probable that the second parent was an improved form of *S. multiflora*.

Smithiantha ×hybrida, Voss ex Siebert & Voss, Vilmorin's Blumengärtnerei, i, 791 (1894) [*S. multiflora* × *S. zebrina*].

Nægelia zebrino-multiflora, Regel, in Gartenfl. xii, 34 (1863).

Nægelia ×hybrida, Hort.

Various forms of *Smithiantha ×hybrida* have been figured and some are grown in the United States today. *Smithiantha ×hybrida* 'Leichtlinii' and 'Sulphurea' (*Nægelia* 'Chromatella' of Van Houtte, *Gesnera ×chromatella*, Hort. ex Nichols.) were figured by Regel in Gartenflora xii and *Smithiantha ×hybrida* 'Sulphurea' (as 'Chromatella'), 'Cymosa', 'Lindleyana' (*Gesnera ×Lindleyana*, Hort. ex Nichols.) and 'Rosea Punctatissima' were figured as varieties of Nægelia by Van Houtte in Flore des Serres, xvi, 115, t. 1671-1672 (1865-66).

The name of the hybrid 'species', however, should not be indiscriminately applied but used for progeny of this particular cross. Cultivars of doubtful parentage are best listed as *Smithiantha* 'Orange King', etc. In this category fall such plants as *Smithiantha* 'Exoniensis' originally described in Floral Magazine, vii, t. 381 (1868) and frequently cultivated as *Gesnera ×exoniensis*, Hort. ex Dombrain, *Smithiantha* 'Refulgens' (*Gesnera ×refulgens*, Hort.) of English greenhouses described and illustrated by Nicholson in Illustrated Dictionary of Gardening, ii, 66 (1885), and *Smithiantha* 'Robusta' described in La Semaine Horticôle, iii, 72 (1899) as *Gesneria robusta compacta* and figured on page 71, fig. 45 as *Gesneria robusta perfecta*.

STREPTOCARPUS

An interesting discussion of Streptocarpus and its hybrids has been given by W. J. C. Lawrence in Journal of the Royal Horticultural Society, lxv, 17-22 (1940) and a listing of hybrids is included in Burtt's treatment of the genus for The Royal Horticultural Society Dictionary of Gardening, iv, 2043-2045 (1951). The Streptocarpus hybrids commonly grown today are of complex nature forming a hybrid group or grex hybrida comparable to the garden geranium (*Pelargonium ×hortorum*, Bailey) and may be referred to by the following name:

Streptocarpus ×hybridus, Voss ex Siebert & Voss, Vilmorin's Blumengärtnerei, i, 795 (1894).

Streptocarpus Rexii has provided the basic stock for this group to which characters from *S. cyaneus*, *S. Dunnii*, *S. parviflorus*, *S. polyanthus*, *S. Saundersii*, *S. Woodii* and perhaps other species have been added through crossing and backcrossing.

SOME INTERGENERIC HYBRIDS

A number of crosses between species of different genera have been reported in the literature, some adequately documented, others not. The genetical and cytological behavior of these hybrids appears to have been largely neglected and most interesting opportunities await the trained investigator in these fields. It is perhaps worth noting that the progeny of crosses, both intergeneric and interspecific, tend to resemble their maternal parent rather closely but the influence of the pollen parent is generally discernable in the color and formation of the flower. The fertility of most of the described hybrids is not recorded but where specifically noted the progeny have often been sterile. Until adequate studies shed more light on the behavior of hybrids in this plastic family it does not seem reasonable to displace genera that are readily distinguished on the basis of morphological criteria simply because intergeneric hybrids are obtained.

The renaissance of interest in the possibilities of hybridization in the Gesneriaceæ is once more producing such crosses, sometimes duplicating those made nearly a century ago. Although the use of formulæ is often an expedient and satisfactory method of expressing hybrid relationships for the botanist, the horticulturist generally prefers a name. For that reason the names of hybrid 'genera' and 'species', some old, some new, are reviewed here. Not all of the hybrids mentioned in the literature are considered. Especially of late, diverse crosses have been reported more or less casually without supporting evidence or description of the progeny, if any was obtained. Development of a capsule without viable seed may be induced by the stimulus of foreign pollen and the extent of parthenogenesis, if any, in this family is not known. Seed has been obtained from experimental crosses particularly in the Columneæ but studies of the progeny are not yet available. It is to be hoped that future hybrids will be well documented as to parentage and the character of the progeny under the suggestions incorporated in the International Code of Botanical Nomenclature and the International Code of Nomenclature for Cultivated Plants. The Bailey Hortorium welcomes the receipt of specimens representing hybrids of experimental origin along with specimens of their parents. Such specimens will serve as vouchers for the crosses and as study material for students of the taxonomy or genetics of the Gesneriaceæ.

Two crosses are omitted in formal discussion. One is a somewhat

doubtful hybrid originated at the Veitch nurseries in England which was described and figured by Lemaire in L'Illustration Horticole, xi, t. 390 (1864) as *Stenogastra* ×*multiflora*. The parents were given as *Mandirola lanata* (= *Achimenes Ehrenbergii*) and *Stenogastra concinna* (= *Sinningia concinna*). The progeny as illustrated is very similar to *Sinningia concinna* except for the lilac flowers. Since Lemaire indicated doubt as to the parentage, because the hybrid is not now cultivated and because the parent genera are rather distantly related it is perhaps advisable to wait for re-synthesis before coining a name. A second cross is well documented but is not assigned to a hybrid 'genus' because of differences in the interpretation of the parent genera. The hybrid is known as *Ramonda* ×*Van-Dedemii*, Beauverd and was documented in Bulletin de la Société Botanique de Genève, series 2, xix, 364 (1927) [1928]. *Ramonda Myconii* served as the pollen parent, *Jankæa* or *Ramonda Heldreichii* as the seed parent. The genus Jankæa is maintained apart by many current writers and in horticultural practice but has been combined with Ramonda by such students as C. B. Clarke, Bentham and Hooker f., Turrill and Beauverd. A complete study of this hybrid and its parent genera, both of which are cultivated, would prove of considerable interest. Until such a study is made and provides decisive evidence either for the separation or union of Jankæa and Ramonda there seems to be no purpose in providing a new 'generic' name for *Ramonda* ×*Van-Dedemii*. The majority of the intergeneric crosses that follow are between genera of the tribes Gloxinieæ and Sinningieæ of the subfamily Gesnerioideæ.

×**EUCODONOPSIS,** Van Houtte, in Fl. des Serres, xvi, 1, t. 1608 (1865) [Achimenes × Smithiantha].

The earliest name applicable to hybrids between the genera Achimenes in its present concept and Smithiantha appears to be that given by Van Houtte. It is derived from the generic name formerly used for *Achimenes Ehrenbergii* (*Eucodonia Ehrenbergii*). Although Van Houtte abandoned this name in later volumes of Flore des Serres in favor of Eucodonia or Achimenes there seems no valid reason for not accepting ×Eucodonopsis. It is a more euphonious name than can be coined from a combination of the two parent genera as would be done under current rules and it was validly published in monotypic form with plate and description. Although the volume of Flore des Serres in which it appeared covers the years 1865 to 1867, the date of 1865 is probably correct since ×Eucodonopsis was mentioned among new and interesting plants in the April number of Illustrierte Garten-Zeitung (Stuttgart), x, 59 (1866) and a reproduction of the original plate was included on page 129 as table 9 of the same volume. Four recorded 'species' belong to this 'genus' and it is probable that a plant figured by Van Houtte as Achimenes 'Bleu' in Flore des Serres, xviii, 77, t. 1872 (1869-70) also belongs here.

† ×**Eucodonopsis achimenoides,** (Bartik) comb. nov. (*Achimenes glabrata* × *Smithiantha zebrina* 'Splendens'].

Plectopoma ×*nægelioides*, Van Houtte, in Fl. des Serres, xvii, 67 t. 1745-54 (1867-68) & xviii, t. 1860-61 (1869-70).

Nægelia ×*achimenoides*, Bartik, in Wiener Illustrierte Garten-Zeitung, x, 239 (1885).

Smithiantha ×*achimenoides*, (Bartik) Fritsch, in Engler and Prantl, Nat. Pflanzenf. iv, 3b, 176 (1894).

Gesnera ×*nægelioides*, Hort.

When Van Houtte first described this hybrid he illustrated six named segregates or variants: ×*Eucodonopsis achimenoides* 'Corallina' with deep rose flowers having a yellow throat dotted with red (t. 1745-46); 'Aureo-rosea' with bicolored pink and rose flowers, yellow in the throat, white below and copiously rose-dotted on the lower lobes and in the throat (t. 1747-48); 'Candida' with white flowers, yellow in the throat and rather resembling those of *Smithiantha multiflora* (t. 1749-50); 'Bicolor' with red, orange and yellow flower colors of *Smithiantha zebrina* but spotted and shaped as in *Achimenes glabrata* (t. 1751-52); 'Scintillans' with rose-purple flowers nearly like those of 'Corallina' but with larger foliage like that of Smithiantha (t. 1753-54) and 'Suave-rosea' with pink flowers dotted with red in the white and yellow throat (t. 1860-61). An additional form was figured as 'Colibri' having scarlet and white flowers with a yellow throat in Flore des Serres, xviii, t. 1867-68.

Foliage of these forms varies as do the flowers, some variants having leaves much like Achimenes, others strongly resembling Smithiantha. Although these hybrids do not appear to have persisted they were considered of exceptional beauty by Van Houtte and would repay new attempts to re-create them.

×**Eucodonopsis nægelioides,** Van Houtte, in Fl. des Serres, xvi, 1, t. 1608 (1865) [*Achimenes Ehrenbergii*♀ × *Smithiantha zebrina* 'Splendens'♂].

×*Eucodonopsis nægelioides* is not uniform. The first form described had much the habit of *Achimenes Ehrenbergii* but with the deeper leaf color of Smithiantha and handsome rose flowers with a red-dotted yellowish throat. In succeeding volumes of Flore des Serres other variants were illustrated. ×*Eucodonopsis nægelioides* 'lilacinella' [*Eucodonia nægelioides lilacinella*] in volume xvii, 79, t. 1757-58 (1867-68) had pale lavender flowers striped and mottled with deeper lavender, the white throat streaked with yellow and spotted with purple. ×*Eucodonopsis nægelioides* 'Nana multiflora' [*Eucodonia* or *Achimenes nægelioides* 'Nana multiflora'] in volume xviii, 117, t. 1895-96 (1869-70) resembled *Smithi-*

antha zebrina rather closely but was of dwarf habit, while 'Diamantina' [*Achimenes nægelioides diamantina*] xviii, 149, t. 1914-1915 resembled its Achimenes parent with lilac-purple flowers having a yellow-gold throat.

† ×**Eucodonopsis picturata,** (Planch.) comb. nov. [*Achimenes multiflora*♀ × *Smithiantha zebrina*♂].

Mandirola × *Nægelia picturata,* Planch. in Fl. des Serres, x, 55, t. 989 (1854-55).

×*Eucodonopsis picturata* was nearly intermediate between its parents. The marbled leaves, subracemose terminal inflorescence and red and yellow flower color of the paternal parent was combined with flower shape and pedunculate cymes of the maternal parent. Flowers were rose with a red-dotted yellow throat. Planchon noted that this cross was sterile.

† ×**Eucodonopsis Roezlii,** (Planch.) comb. nov. [*Achimenes mexicana*♂ × *Smithiantha zebrina*♀].

Mandirola × *Nægelia Roezlii,* Planch. in Fl. des Serres x, 49, t. 987-988 (1854-55).

The plant illustrated as representing this cross has the habit of its maternal parent but the flowers are of a rose-lilac color and nearly horizontal rather than nodding. Stamens were described as being sterile, no pollen having developed in the anthers.

×**GLOXINERA,** Weathers, in Gard. Chron. ser. 3, xvii, 144 (1895) [Rechsteineria × Sinningia].

The hybrid between these two important genera of cultivated Gesneriaceæ was first produced by the firm of Veitch & Sons at Chelsea, London, England and appeared in 1894. Parents were a hybrid Rechsteineria of unknown parentage bearing the name *Gesnera* ×*pyramidalis,* Hort. ex Nichols. and a named form of 'Gloxinia' or *Sinningia speciosa.* The offspring was christened ×*Gloxinera* 'Brilliant' from a combination of generic names in use at that time. Other crosses assignable to ×Gloxinera have been made in the past and are currently being produced in the United States. Those known thus far in addition to the original ×*Gloxinera* 'Brilliant' are listed below.

† ×**Gloxinera Donkelaariana,** (Lem.) comb. nov. [*Rechsteineria discolor*♀ × *Sinningia speciosa* 'Rubra' ♂].

Gesneria ×*Donkelaariana,* Lem. Jard. Fleur. iv, t. 382 (1853).

Gesneria Donklarii, Hort. ex Hook. in Bot. Mag. t. 5070 (1858).

Resembling the maternal parent, this hybrid was considered a species by Decaisne and by Hooker and a controversy over the authenticity of

the cross appeared in print in some of the horticultural periodicals of the time. It appears to be authentic and was the product of a cross made by Donkelaar at Ghent, Belgium in 1850. Van Houtte, commenting on Decaisne's treatment of it in Flore des Serres, ix, 119-120, t. 902 (1853-54) stated that, unlike the maternal parent, the hybrid was sterile. Whether this was entirely so may be questioned since a backcross between it and *Sinningia speciosa* was reported from Germany in 1884 and was figured in several journals and in Nicholson's Illustrated Dictionary of Gardening as *Gloxinia* ×*gesnerioides* as opposed to ×*Gloxinera gesnerioides* which is a quite different taxon.

×**Gloxinera gesnerioides,** (Lem.) comb. nov. [*Rechsteineria Cooperi* ♂ × *Sinningia tubiflora* ♀].

Gloxinia ×*gesnerioides,* Lem. in Fl. des Serres, ii, Feb., t. 3 (1846).

A distinct hybrid with much the aspect of the maternal parent but with rose rather than white flowers. As noted above, this is not the *Gloxinia* ×*gesnerioides* of later authors.

×**Gloxinera rosea,** H. E. Moore and R. G. Wilson, hybr. nov. [*Rechsteineria macropoda* ♂ × *Sinningia eumorpha* ♀].

Hybrida inter *Rechsteineriam macropodam* et *Sinningiam eumorpham* intermedia caulibus rubro-lineatis 15 cm. longis: folia 4 paria elliptica 15 cm. longa 12 cm. lata crenata pilosula: pedunculi axillares elongati: flores 3 pedicellati eis *Sinningiæ eumorphæ* similes sed rosei.

Plants intermediate between the two parents, the stems up to 15 cm. high, reddish-flushed and lined, densely pilosulous, bearing 4 pairs of leaves: petioles elongate, green, pilosulous, flecked with red, 5-11 cm. long, blades elliptic-ovate, to 15 cm. long, 12 cm. wide, green and pilose above, paler and pilose on the veins below, the margins crenate: flowers nodding, orange in bud, pink at anthesis, 2-3 in each umbel on ebracteate pilosulous peduncles ca. 8 cm. long, the pedicels ca. 7 cm. long; calyx-lobes spreading, lanceolate, 15 mm. long, green, pilosulous; corolla similar to that of *Sinningia eumorpha,* the tube densely and minutely red pilosulous, 3 cm. long, the lobes clear pink, ca. 10 mm. long, 15 mm. wide; stamens 4 with the anthers united in a square, the filaments nearly glabrous; style densely glandular, the stigma substomatomorphic, the red ovary densely pilosulous; glands of the disk 2.

Cultivated at Fantastic Gardens, South Miami, Florida, February 25, 1954, *H. E. Moore, Jr. 6825* (BH, type).

×*Gloxinera rosea* originated in the greenhouses of Mr. R. G. Wilson at South Miami, Florida. Two plants, very similar in general aspect but differing in flower-color, were raised from seed and are currently being propagated[3]. Both clones have the taller habit of Rechsteineria but bear

[3] Mr. Wilson has requested me to note that ×*Gloxinera rosea* will not be available before the spring of 1955.

axillary umbels of Sinningia-like flowers in two shades of pink. As yet neither back-crosses nor self-crosses have been completed but it is of interest to note that the pollen of the first generation progeny appears to be at least 50% fertile.

† ×**HEPPIANTHA,** gen. hybr. nov. [Heppiella × Smithiantha].

A hybrid genus based on the only recorded cross, ×Heppiantha is unlikely to be found in cultivation in the United States but may persist in Europe. Fritsch saw plants purportedly of this parentage in Vienna about 1915 and from his observations concluded in Österreichische Botanische Zeitung, lxv, 37 (1915) that it was a doubtful hybrid. Whether the material seen by Fritsch was authentic or not cannot be determined but the illustration and description of the original cross portray a distinctly intermediate plant and there is no valid reason to reject it.

† ×**Heppiantha nægelioides,** (Lem.) comb. nov. [*Heppiella viscida* ♂ × *Smithiantha zebrina* ♀].

Heppiella ×*nægelioides,* Lem. in Ill. Hort. iv, t. 129 (1857).

Gesneria ×*egregia,* Hort. ex Lem., l. c.

A comparison of the illustration of ×*Heppiantha nægelioides* with that of either parent shows the intermediate character of the hybrid which has the foliage and compact habit of Smithiantha but has pedunculate cymes of red flowers similar to those of Heppiella borne in a crowded terminal inflorescence.

×**STREPTOGLOXINIA,** Rodigas, in Ill. Hort. xxxix, 124 (1892) [Sinningia × Streptocarpus].

The possibility of an intergeneric cross between Sinningia and Streptocarpus has long been of interest to fanciers of gesneriads. In 1892, Emile Rodigas reported on such a cross made by Gheerbrant who used a white-flowered *Streptocarpus* ×*hybridus* and a red-flowered variant of *Sinningia speciosa* as parents. Plants raised from it were said to resemble *Sinningia speciosa* but had not flowered when Rodigas published his name. No further reference has been found to these plants in the literature.

Within the past few years another reputed cross of this type has been offered for sale under the commercial name Stroxinia. Photographs of Stroxinia 'Lorna' on page 3 of The Gloxinian, May-June, 1952 and on page 11, January-February, 1953, show plants that are scarcely to be differentiated from *Sinningia speciosa* except for an overlapping of the upper lobes on the limb. Efforts to secure further information on this cross have not met with success. Carefully controlled and recorded breeding efforts are needed to show whether this is an actual hybrid or whether it is the result of parthenogenetic development of Sinningia ovules caused

by the stimulation of foreign pollen. If such a cross exists or is developed in the future it would appear that the name ×*Streptogloxinia* should be used as the description, though scarcely adequate by modern standards, is recorded properly.

FINDING LIST OF GESNERIAD NAMES

The following list of names and formulæ applied to taxa cited in this paper is provided for reference. Names of taxa accepted as valid are set in **bold face,** names of synonyms and formulæ in *italics.*

Achimenes Ehrenbergii (page 375)
Achimenes Ehrenbergii × *Sinningia concinna* cf. *Stenogastra* ×*multiflora*
Achimenes Ehrenbergii × *Smithiantha zebrina* = ×**Eucodonopsis nægelioides**
Achimenes lanata = **Achimenes Ehrenbergii**
Achimenes magnifica = **Kohleria magnifica**
Achimenes mexicana × *Smithiantha zebrina* = ×**Eucodonopsis Roezlii**
Achimenes multiflora × *Smithiantha zebrina* = ×**Eucodonopsis picturata**
Achimenes nægelioides = ×**Eucodonopsis nægelioides**
Achimenes × *Smithiantha* = ×**Eucodonopsis**
Allagophylla = **Rechsteineria**

Columnea ×**Banksii** (page 376)
Columnea glabra × *C. magnifica* = **Columnea** ×**Lemoinei**
Columnea gloriosa × *C.* ×*vedrariensis* = **Columnea** ×**Vilmoriniana**
Columnea ×**Lemoinei** (page 376)
Columnea magnifica × *C. Schiedeana* = **Columnea** ×**vedrariensis**
Columnea Oerstediana × *Schiedeana* = **Columnea** ×**Banksii**
Columnea ×**vedrariensis** (page 376)
Columnea ×**Vilmoriniana** (page 376)
Corytholoma = **Rechsteineria**

Diastema Lehmannii (page 377)
Diastema pictum = **D. vexans**
Diastema vexans (page 377)
Dircæa = **Rechsteineria**
Dircæa cardinalis = **Rechsteineria cardinalis**

Episcia dianthiflora (page 378)
Eucodonia Ehrenbergii = **Achimenes Ehrenbergii**
Eucodonia Ehrenbergii × *Nægelia zebrina* = ×**Eucodonopsis nægelioides**
Eucodonia nægelioides = ×**Eucodonopsis nægelioides**
×**Eucodonopsis** (page 395)
×**Eucodonopsis achimenoides** (page 396)
×**Eucodonopsis nægelioides** (page 396)
×**Eucodonopsis picturata** (page 397)
×**Eucodonopsis Roezlii** (page 397)

Gesnera Mart. = **Rechsteineria**
Gesnera ×*chromatella* = **Smithiantha** ×**hybrida** 'Sulphurea'
Gesnera ×*exoniensis* = **Smithiantha** 'Exoniensis'
Gesnera ×*Lindleyana* = **Smithiantha** ×**hybrida** 'Lindleyana'
Gesnera maculata cf. **Kohleria lanata**
Gesnera ×*nægelioides* = ×**Eucodonopsis achimenoides**
Gesnera ×*pyramidalis* × *Sinningia speciosa* = ×**Gloxinera** 'Brilliant'
Gesnera ×*refulgens* = **Smithiantha** 'Refulgens'
Gesneria cardinalis = **Rechsteineria cardinalis**
Gesneria ×*Donkelaariana* = ×**Gloxinera Donkelaariana**
Gesneria Donklarii = ×**Gloxinera Donkelaariana**
Gesneria ×*egregia* = ×**Heppiantha nægelioides**

Gesneria Lindenii cf. **Kohleria Lindeniana**
Gesneria macrantha = **Rechsteineria cardinalis**
Gesneria? maculata = **Kohleria lanata**
Gesneria robusta compacta = **Smithiantha** 'Robusta'
Gesneria robusta perfecta = **Smithiantha** 'Robusta'
×**Gloxinera** (page 397)
×**Gloxinera** 'Brilliant' (page 397)
×**Gloxinera Donkelaariana** (page 397)
×**Gloxinera gesnericides** (page 398)
×**Gloxinera rosea** (page 398)
Gloxinia ×*cerina* = **Sinningia** ×**cerina**
Gloxinia ×*gesnerioides*, Hort. = ×**Gloxinera Donkelaariana**
Gloxinia ×*gesnerioides*, Lem. = ×**Gloxinera gesnerioides**
Gloxinia Lindeniana = **Kohleria Lindeniana**
Gloxinia × *Tapeinotes* = **Sinningia** ×**pronopes**

×**Heppiantha** (page 399)
×**Heppiantha nægelioides** (page 399)
Heppiella ×*nægelioides* = ×**Heppiantha nægelioides**
Heppiella × *Smithiantha* = ×**Heppiantha**
Heppiella viscida × *Smithiantha zebrina* = ×**Heppiantha nægelioides**

Isoloma ×*giganteum* cf. **Kohleria** ×**dubia**
Isoloma Lindenianum = **Kohleria Lindeniana**

Koernickea lanata = **Achimenes Ehrenbergii**
Kohleria 'Amabilis Hybrids' (page 388)
Kohleria Behnickii (page 385)
Kohleria bogotensis × *K. ferruginea* = **Kohleria** ×**Heeriana**
Kohleria bogotensis × *K.* ×*Hillii* = **Kohleria** ×**pulchra**
Kohleria bogotensis × *K. hondensis* = **Kohleria** ×**Hillii**
Kohleria bogotensis × *K. ocellata* = **Kohleria** ×**Rossiana**
Kohleria bogotensis × *K. Warszewiczii* = **Kohleria** ×**gigantea**
Kohleria digitaliflora × *K. sp.* = **Kohleria** ×**Lucianii**
Kohleria ×**dubia** (page 384)
Kohleria 'Eeckhautii' (page 387)
Kohleria ferruginea (page 384)
Kohleria ×**gigantea** (page 384)
Kohleria ×*gigantea* × *K. ocellata* = **Kohleria** ×**Hansteinii**
Kohleria § **Gloxinella** (page 382)
Kohleria ×**Hansteinii** (page 385)
Kohleria ×**Heeriana** (page 386)
Kohleria ×**Hillii** (page 386)
Kohleria ×*Hillii* × *K. ocellata* = **Kohleria** ×**Lennaana**
Kohleria lanata (page 379)
Kohleria ×**Lenneana** (page 386)
Kohleria Lindeniana (page 380)
Kohleria Lindenii (page 382)
Kohleria longipedunculata = **Kohleria lanata?**
Kohleria ×**Lucianii** (page 386)
Kohleria maculata cf. **Kohleria lanata**
Kohleria magnifica (page 383)
Kohleria magnifica × *K. Warszewiczii* = **Kohleria** ×**Ortgiesii**
Kohleria 'Marquis de Guadiano' (page 388)
Kohleria 'Meyerbeer' (page 388)
Kohleria ocellata cf. **Kohleria** ×**Lucianii** and **K.** ×**Hansteini**
Kohleria ×**Ortgiesii** (page 387)
Kohleria ×**pulchra** (page 387)
Kohleria ×**Rossiana** (page 387)
Kohleria Straussiana (page 387)
Kohleria 'Vaca de Castro' (page 388)
Kohleria 'Vesuvius' = **Kohleria** ×**Ortgiesii**

Locheria magnifica = **Kohleria magnifica**

Mandirola lanata = **Achimenes Ehrenbergii**
Mandirola lanata × *Stenogastra concinna* = *Stenogastra* ×*multiflora*
Mandirola × *Nægelia picturata* = ×**Eucodonopsis picturata**
Mandirola × *Nægelia Roezlii* = ×**Eucodonopsis Roezlii**
Megapleilis = **Rechsteineria**

Nægelia ×*achimenoides* = ×**Eucodonopsis achimenoides**
Nægelia fulgida × *N.* 'Emma Lefevre' = **Smithiantha** ×**hyacinthina**
Nægelia ×*hyacinthina* = **Smithiantha** ×**hyacinthina**
Nægelia ×*hybrida* = **Smithiantha** ×**hybrida**
Nægelia varieties = **Smithiantha** ×**hybrida**
Nægelia zebrino-multiflora = **Smithiantha** ×**hybrida**

Plectopoma ×*nægelioides* = ×**Eucodonopsis achimenoides**

Ramonda Myconii × *Jankæa* or *Ramonda Heldreichii* = **Ramonda** ×**Van-Dedemii**
Ramonda ×**Van-Dedemii** (page 395)
Rechsteineria (page 388)
Rechsteineria ×**artefacta** (page 389)
Rechsteineria cardinalis (page 389)
Rechsteineria confertifolia × *R. splendens* = **Rechsteineria** ×**artefacta**
Rechsteineria Cooperi × *Sinningia tubiflora* = ×**Gloxinera gesnerioides**
Rechsteineria discolor × *Sinningia speciosa* = ×**Gloxinera Donkelaariana**
Rechsteineria macropoda × *Sinningia eumorpha* = ×**Gloxinera rosea**
Rechsteineria × *Sinningia* = ×**Gloxinera**
Rosanowia ×*hybrida* = **Sinningia** ×**ornata**
Rosanowia ×*ornata* = **Sinningia** ×**ornata**

Scheeria lanata = **Achimenes Ehrenbergii**
Sciadocalyx ×*Lucianii* = **Kohleria** ×**Lucianii**
Sinningia barbata × *S. speciosa* = **Sinningia** ×**pronopes**
Sinningia ×**cerina** (page 390)
Sinningia conspicua × *S. speciosa* = **Sinningia** ×**ornata**
Sinningia eumorpha (page 390)
Sinningia gloxiniflora = **Eumolpe glabrata**
Sinningia guttata × *S. speciosa* = **Sinningia** ×**cerina**
Sinningia Maximiliana cf. (page 389)
Sinningia ×**ornata** (page 392)
Sinningia ×**pronopes** (page 392)
Sinningia speciosa × *S. velutina* = **Sinningia** ×**Youngeana**
Sinningia × *Streptrocarpus* = ×**Streptogloxinia**
Sinningia ×**Youngeana** (page 392)
Smithiantha ×*achimenoides* = ×**Eucodonopsis achimenoides**
Smithiantha 'Exoniensis' (page 393)
Smithiantha fulgida × *S. multiflora* = **Smithiantha** ×**hyacinthina**
Smithiantha ×**hyacinthina** (page 393)
Smithiantha ×**hybrida** (page 393)
Smithiantha multiflora × *S. zebrina* = **Smithiantha** ×**hybrida**
Smithiantha 'Orange King' (page 393)
Smithiantha 'Refulgens' (page 393)
Smithiantha 'Robusta' (page 393)
Stenogastra ×*multiflora* (page 395)
Streptocarpus hybrids (page 393)
Streptocarpus ×*hybridus* × *Sinningia speciosa* cf. ×**Streptogloxinia**
Streptocarpus ×**hybridus** (page 393)
×**Streptogloxinia** (page 399)
Stroxinia cf. ×**Streptogloxinia**
Styrosinia = **Rechsteineria**

Tapeinotes Carolinæ cf. **Sinningia** ×**pronopes**
Tulisma = **Rechsteineria**
Tydæa '*Argyroneura*' = **Kohleria** ×**pulchra** 'Argyroneura'
Tydæa ×*Decaisneana* = **Kohleria** ×**gigantea**
Tydæa ×*Eeckhautii* = **Kohleria** 'Eeckhautii'
Tydæa ×*gigantea* = **Kohleria** ×**gigantea**

Tydæa ×*Hansteinii* = **Kohleria** ×**Hansteinii**
Tydæa ×*Hillii* = **Kohleria** ×**Hillii**
Tydæa ×*hybrida* = **Kohleria** ×**gigantea**
Tydæa hybrida nana = **Kohleria** ×**gigantea** 'Nana'
Tydæa hybrida grandiflora cf. **Kohleria** ×**gigantea**
Tydæa ×*Lenneana* = **Kohleria** ×**Lenneana**
Tydæa Lindeniana = **Kohleria Lindeniana**
Tydæa Lindenii = **Kohleria Lindeniana**
Tydæa magnifica = **Kohleria magnifica**
Tydæa Meyendorfii var. *rubra* = **Kohleria** ×**Ortgiesii**
Tydæa ×*Ortgiesii* = **Kohleria** ×**Ortgiesii**
Tydæa pardina cf. **Kohleria** ×**Lucianii**
Tydæa ×*pulchra* = **Kohleria** ×**pulchra**
Tydæa pyramidalis multiflora (page 388)
Tydæa ×*Regelii* = **Kohleria** ×**Heeriana**
Tydæa ×*Rossiana* = **Kohleria** ×**Rossiana**
Tydæa venosa (page 388)
Tydæa '*Vesuvius*' = **Kohleria** ×**Ortgiesii**
Tydæa Warscewiczii = **Kohleria ferruginea**

ARTICLE 18.

TWO NEW FLORIDAN SPECIES OF CHRYSOPSIS, Ell. (Compositae).

By William J. Dress

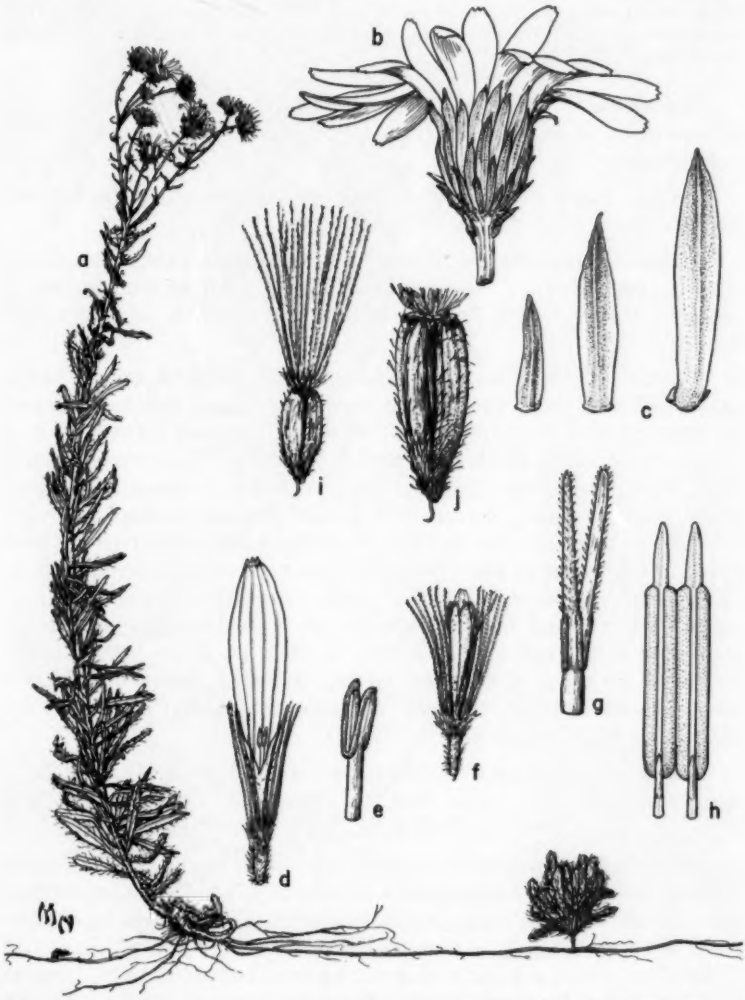
The existence of the two species herein newly described was first indicated during a recent study of the Chrysopsis collections in some of our major American herbaria. Two subsequent field trips in the northwestern part of Florida were rewarded by the rediscovery of living plants of both. Field observations and the additional material afforded by collections made then have furnished a basis sufficient for their present description as new species.

† **Chrysopsis mixta,** spec. nov. Fig. 125.

Herba perennis, plantis novis e radicibus horizontalibus enascentibus: caules solitarii paucive, erecti vel ascendentes, graciles, 2.5-6[-9] dm. alti, inferne arachnoideo-villosi, superne glabrescentes: folia rosularia ad 6 cm. longa, oblanceolata, integra, obtusa, mucronulata, sessilia, sordide arachnoideo-villosa, marcida deciduaque; folia caulina inferiora patentia, multa, 2.5-4[-6] cm. longa, 2-8 mm. lata, anguste oblanceolata seu linearioblanceolata, plerumque integra, mucronulata sive acuta, ad basim longe attenuata, sessilia, villosa, sursum gradatim minora; superiora linearia, ca. 1.2 cm. longa, 1-2 mm. lata, acuta, pubescentia glabrave: inflorescentia cymosa seu cymoso-paniculata, capitulis ad 25, pedunculis 3.7[-10] cm. longis, glabris, bracteolatis; involucra campanulata, 7-10 mm. alta, phyllariis in 4-5 ordinibus imbricatis, lineari-lanceolatis, glabris, erectis, interioribus acuminatis, scariosis, exterioribus acutis apicibus herbaceis; ligulæ ca. 20 flavæ, 8-10 mm. longæ; corollæ disci ca. 60 flavæ, 5-7 mm. longeæ: achenia subcompressa, cuneato-obovata, 2-2.6 mm. longa, pallida, hispidula, cum aliquot costis, harum 2[-6] crassis, clavatis, fuscis; pappus duplex, interiore in setis barbellatis, exteriore in squamellis brevibus consistente.

Perennial herb, persisting by offshoots from the base of the rootstocks and by sprouting from slightly thickened portions of filiform horizontal roots; stems solitary or few, erect or curving-erect, slender, 2.5-6[-9] dm. high, loosely arachnoid-villous below, glabrescent above: leaves of the rosettes to 6 cm. long, oblanceolate, entire, obtuse and mucronulate, sessile, sordidly arachnoid-villous, withering and often deciduous by flowering time: lower cauline leaves spreading, rather numerous, 2.5-4[-6] cm. long, 2.8 mm. wide, narrowly oblanceolate to linear-oblanceolate, 1 or a few occasionally bearing 1 or 2 pairs of short teeth above the middle, otherwise entire except for the thickened bases of the marginal hairs, obtuse and mucronulate or acute, basally long-attenuated and sessile, loosely soft-villous, gradually diminished, in length and width, upward along the stem; the upper narrow and linear, about 1-2 cm. long, 1.2 mm.

wide, acute, sessile, recurving to spreading-erect, sparsely hairy to glabrous: inflorescence cymose, of few heads, or cymose-paniculate and then with up to 25 heads, not widely branching: peduncles mostly erect, 3-7[-10] cm. long, glabrous, with 4-17 very short, narrowly linear bracteoles, the uppermost grading into the phyllaries; involucres campanulate, 7-10 mm.



125. CHRYSOPSIS MIXTA. a, plant (from herbarium specimen) ×3/8; b, head ×2; c, phyllaries ×5; d, ray-floret ×4; e, tip of style of ray-floret ×15; f, disk-floret ×4; g, tip of style of disk-floret ×15; h, two anthers ×15; i, achene with pappus ×5; j, achene ×10.

high; phyllaries imbricated in 4 or 5 ranks, linear-lanceolate, glabrous, erect, the inner scarious and acuminate, the outer narrowly herbaceous-tipped and acute; ray-florets yellow, ca. 20, the ligules 8-10 mm. long, obscurely 3-toothed apically; disk-florets ca. 60 in number, 5-7 mm. long, lobes 0.5-0.9 mm. long: achenes subcompressed, cuneate-obovate, 2-2.6 mm. long, pale, white-hispid, obscurely ribbed, with 2[-6] of these thickened, dark, somewhat clavate and gland-like; inner pappus of numerous barbellate capillary bristles 5.5 mm. long, the outer of setiform squamellæ to 0.8 mm. long.

Type: about 5.5 miles east of Argyle, Florida, in sandy soil at margin of pine woods along U. S. Route 90, Oct. 2, 1953, *W. J. Dress 2689* (BH, holotype).

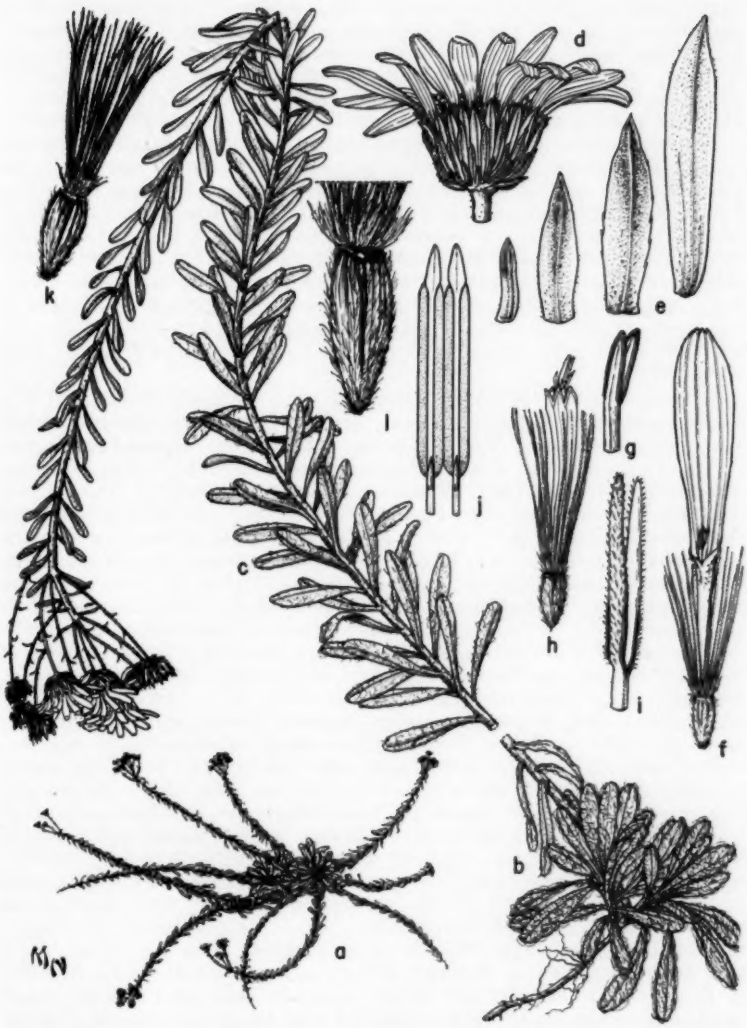
Georgia, Early Co.: east of Saffold, dry sand along Kirkland Creek, Sept. 16, 1947, *R. F. Thorne 6671* (CU).

Alabama, Escambia Co.: Wilson Station, grassy banks pine barren stream, Oct. 9, 1891, *C. Mohr s.n.* (US 783387); Wilson Station, Oct. 9, 1891, *C. Mohr s.n.* (US 783388); Wilson, Oct. 1892, *C. Mohr s.n.* (US 865120).

Florida, Gadsden Co.: River Junction, high pineland, Oct. 19, 1929, *H. O' Neill 6132* (BH). Liberty Co.: Bristol, dry sandy pine barrens, Oct. 25, 1895, *C. Mohr s.n.* (US 783386). Holmes Co.: about 5.5 miles east of Argyle, in sandy soil at margin of pine woods along U. S. Route 90, Oct. 2, 1953, *W. J. Dress 2689* (BH, holotype). Walton Co.: about 4 miles west of De Funiak Springs, in sandy soil in open pine and turkey-oak woods along U. S. Route 90, Oct. 3, 1953, *W. J. Dress 2693* (BH); near Mossyhead, in sandy soil in open pine and turkey-oak scrub-woodland along U. S. Route 90, Oct. 3, 1953, *W. J. Dress 2694* (BH). Okaloosa Co.: between Crestview and Deerland, growing along roadside (U. S. Route 90) at edge of turkey-oak scrubland, Oct. 3, 1953, *W. J. Dress 2695* (BH). Escambia Co.: near Gull Point, on top of grassy, sandy bluffs above Escambia Bay, Oct. 3, 1953, *W. J. Dress 2697* (BH); Pensacola, dry hills, July 1874, *C. Mohr s.n.* (F 747762).

Mississippi, Harrison Co.: Biloxi, Sept. 4, 1900, *S. M. Tracy & D. L. Lloyd 545* (GH, NY); Biloxi, Aug. 22, 1898, *S. M. Tracy 4338* (F, MO, NY, US); Biloxi, Oct. 18, 1898, *S. M. Tracy 6492* (MO, NY, US).

This is a common plant of the sandy barrens of the Florida Panhandle and has been collected occasionally in the past. It has, however, always been confused with *C. gossypina*, *C. hyssopifolia*, *C. trichophylla*, *C. pinifolia*, or *C. mariana*. It is nevertheless a distinct species, sharing with *C. floridana*, Small, the habit of sprouting from horizontal roots, often at a distance of a decimeter or more from the original plant. Its nearest relatives, *C. hyssopifolia*, Nutt., *C. subulata*, Small, and the plant commonly passing as *C. trichophylla*, are coarse biennials.



126. CHRYSOPSIS CRUISEANA, a, habit in winter condition $\times\frac{1}{16}$; b, base of single stem, winter condition, $\times 1\frac{1}{2}$; c, single stem at flowering time $\times 1\frac{1}{2}$; d, head $\times 1\frac{1}{2}$; e, phyllaries $\times 5$; f, ray-floret $\times 4$; g, tip of style of ray-floret $\times 15$; h, disk-floret $\times 4$; i, tip of style of disk-floret $\times 15$; j, two anthers $\times 12$; k, achene with pappus $\times 5$; l, achene $\times 10$.

† **Chrysopsis Cruiseana,** spec. nov. Fig. 126.

Herba perennis, rosulis hiemalibus numerosis: caules plures, ad basim ramosi, radicantes, superne ascendentes et simplices, graciles, ad 6 dm. longi, inferne aliquantum arachnoidei, superne subtiliter stipitato-glandulosi: folia rosularia albido-lanata, ad 6 cm. longa, 12 mm. minusve lata, oblanceolata seu anguste oblanceolata, integra, obtusa, sessilia, attenuata, ad basim purpurea, folia caulina permulti, infimis eis rosularibus similibus, marcidis, mediis ad 2 cm. longis, oblanceolatis seu linearioblongis, obtusis apiculatisque seu acutis, sparse sericeo-villosis, glabrescentibus, et subtiliter stipitato-glandulosis, supremis minoribus: inflorescentia subumbellatim cymosa, aliquantum conferta, fere simplex, capitulis paucis (ad 15), pedunculis 1-5 cm. longis et obscure glandulosis, bracteolatis; involucra late campanulata, ad 1 cm. alta, phyllariis in ca. 4 ordinibus imbricatis, lanceolatis seu lineari-oblanceolatis, acutis, margine scariosis, sparse et minute glandulosis; ligulæ 13-25 flavæ, 10 mm. longæ; corollæ disci ca. 35 flavæ, 6 mm. longæ: achenia subcompressa, cuneato-oblonga, 3-3.5 mm. longa, pallida, hispida, costis paucis obscuris, sed harum [1-]2 [-4] fuscis, crassioribus, exiliter clavatis; pappus duplex, interiore in setis barbellatis 6.5 mm. longis, exteriore in squamellæ 0.5-0.8 mm. longis consistente.

Perennial herb, producing numerous overwintering rosettes at the lowest nodes of the flowering stems; stems usually many, clump-forming and spreading radially from the center, basally branched and rooting at or below ground level, but curving and spreading-erect above, normally unbranched above the base, slender (usually less than 5 mm. thick), to 6 dm. long, somewhat arachnoid-pubescent near the base but only minutely stipitate-glandular above: leaves of the basal and of seedling rosettes white-woolly, to 6 cm. long, 12 mm. or less wide, oblanceolate to narrowly oblanceolate, entire, obtuse, sessile, attenuated to a petiole-like purple base; cauline leaves numerous, spreading-erect, the lowermost similar in shape, size and vestiture to those of the rosettes, marcescent, gradually decreasing in size upward; median leaves ca. 2 cm. long or less, oblanceolate to linear-oblong, sessile, entire, obtuse and shortly apiculate or acute, sparingly silky-villous or glabrate, with also a thin, minute, stipitate-glandularity on surfaces and margins; uppermost leaves shorter, narrower, more glandular, and less villous: inflorescence subumbellately cymose, rather compact, mostly simple and with few (to 15) heads on short, minutely stipitate-glandular peduncles 1-5 cm. long which are usually furnished with 1-4 short, spreading, linear bracteoles; involucre campanulate, about 1 cm. high, phyllaries imbricate, in ca. 4 ranks, lanceolate to linear-oblanceolate, acute, erect or the outer slightly spreading, scarious marginally, with minute and obscure stipitate or subsessile glands on the backs; ray-florets yellow, 13-25, the ligules obscurely 3-toothed at the apex, 10 mm. long; disk-florets yellow, ca. 35 in number, 6 mm. long, the lobes 0.5 mm. long: achenes subcompressed, cuneate-oblong, 3-3.5 mm. long, white-hispid, obscurely ribbed and pale except for 1-4 (usually 2) dark, slightly clavetely-thickened, gland-like ribs on the faces; inner pappus of numerous barbellate hairs 6.5 mm. long, the outer of setiform squamellæ 0.5-0.8 mm. long.

Type: Santa Rosa Island, Florida, in white sand on level ground and on dunes well back from the outer beach, about 2 miles east of Pensacola

Beach, Dec. 27, 1953, *W. J. Dress and J. E. Cruise 2822* (BH, holotype).

Florida, Escambia Co.: Santa Rosa Island, in white sand on level ground and on dunes well back from the outer beach, about 2 miles east of Pensacola Beach, Dec. 27, 1953, *W. J. Dress and J. E. Cruise 2822* (BH, holotype); Santa Rosa Id., May 28, 1903, *S. M. Tracy 8539* (F, GH, MIN, MO, US, paratypes).

This species is named for Dr. James E. Cruise, of the Botany Department of Cornell University, who aided in the search for this long-uncollected species. The perennial habit, the many slender low-spreading stems heavily rooting at the base, the purple bases of the rosette leaves, the small and glandular cauline leaves and the compact subumbellate inflorescence distinguish this species.

Collected fifty years ago by Tracy, his collection was identified by Greene as *C. scabrella*, Torr. & Gray, a much coarser, nearly erect, biennial species which has not, to my knowledge, been found north or west of the northern part of the Florida peninsula. Tracy's specimens, collected in May, are of short stems, apparently out-of-season flowering shoots. The type collection, made in December, is of plants in winter condition, the flowering stems dead but still retaining some achenes. The normal flowering season is probably October or November.

ARTICLE 19.
STUDIES IN THE GENUS CERATOSTIGMA.

By G. H. M. Lawrence

Ceratostigma, a member of the Plumbaginaceæ, is a small genus of Old World shrubs (suffrutescent in *C. plumbaginoides*) having a disjunctive distribution in Africa and Asia. The genus belongs in the Plumbagineæ, Spach, one of two tribes in the family and distinguished from the Staticeæ by the corolla-tube longer than lobes, the styles connate for more than half their length, and the stamens distinct from the corolla. In Ceratostigma, however, the stamens are adnate to the corolla base and the calyx is scarious—characters of the Staticeæ. The name Ceratostigma was given the genus in allusion to the horn-like glandular knobby style-branches.

The genus was last studied comprehensively by Stapf of the Royal Botanic Garden, Kew, in 1906. Since then two species have been described in addition to the seven recognized by him and knowledge of distribution and variation in Asia has been increased materially. The present study was stimulated by the confused identities of material of *C. plumbaginoides* and *C. Willmottianum* and by the large number of misidentifications found in herbarium material of Chinese and Tibetan collections. No new species are described here.

The two species mentioned above are widely cultivated in temperate regions as dwarf or low-growing ornamental shrubs, prized for their cobalt-blue flowers appearing in mid to late summer. *C. Willmottianum* is the less hardy. Plants of *C. minus* have recently been grown in Britain and Seattle, Washington, under collectors numbers but are not known to be in the trade. *C. Griffithii* is reported to have been grown in Britain.

CERATOSTIGMA, Bunge, Enum. Pl. 55 (1831).

Valoradia, Hochst. in Flora, xxv, 2, 239 (1842); Boiss. in DC. Prodr. xii, 694 (1848).

Hochstetter considered the plants from the Abyssinian highlands to be generically distinct from Bunge's Asiatic material (largely on the basis of the eglandular style-branches and disjunctive distribution). Boissier combined the two taxa, but unfortunately failed to adopt Bunge's earlier name.

Ceratostigma is distinguished from other genera of the Plumbagineæ by:

flowers aggregated in more or less dense, head-like, axillary or terminal cymules;

flowers subtended by scarious or nearly woody brownish-red interfloral bracts, and the lowermost bracts sterile;

calyx scarious and eglandular, the tube about one-fifth as long as the 5 linear ± carinate lobes, usually reddish-brown in color (never green or herbaceous); and

stamens basally adnate to the bottom of the corolla-tube.

Species of Ceratostigma may be distinguished by the following key, adapted from that by Stapf (1906):

1. New shoots herbaceous, becoming woody basally: axillary buds naked.
   2. Leaf-margins conspicuously ciliate-setose, the leaves glabrous; interfloral bracts lanceolate.....1. *C. plumbaginoides*
   2. Leaf-margins not ciliate, the leaves usually setose or scabrous; interfloral bracts ovate.....2. *C. asperrimum*
1. New shoots woody or rapidly maturing so, persistent: axillary buds scaly and bracteate, the bases of the bud-scales often persistent and leathery.
   3. Bracts of axillary buds abundant, covering the bases of branchlets produced, acicular, pungent: leaves spinescent-serrulate, usually glabrous on both surfaces: flower-heads terminal on branchlet tips: bark splitting on second year's growth.....3. *C. ulicinum*
   3. Bracts of axillary buds few and only the bases persisting: leaves ciliate but not spinescent serrulate: flower-heads terminal or axillary: bark not splitting.
      4. Shrubs erect: style-branches knobby-glandular (glands mostly stalked or clavate).
         5. Leaves glabrous above or markedly less densely hairy than beneath, obtuse or bluntly acute: calyx-lobes 6-7 mm. long, glabrous; the lowermost 1-2 bracts of inflorescence ovate-acuminate and conspicuously shorter than others.....4. *C. minus*
         5. Leaves hirsute, setose, or strigose on both surfaces, usually acuminate or acute: calyx-lobes 7.5-15 mm. long, setose-hispid (at least on distal third).
            6. Stems and branchlets strongly grooved and ribbed, the upper portions setose on the ribs: calyx 10.5-15 mm. long; corolla-tube 18-23 mm. long.....5. *C. Willmottianum*
            6. Stems and branchlets terete, the upper portions densely fulvous-hirsute (the trichomes plumose): calyx 7.5-11 mm. long; corolla-tube 10-15 mm. long.....6. *C. Griffithii*
      4. Shrubs prostrately spreading or scandent: style-branches eglandular or the glands sessile.
         7. Heads all terminal: plants spreading: bracts and calyx-lobes pungent.....7. *C. abyssinicum*
         7. Heads terminal and axillary: plants clambering: bracts and calyx-lobes scarcely pungent.....8. *C. speciosum*

1. **Ceratostigma plumbaginoides,** Bunge, Enum. Pl. 55 (1831).

   Plumbago Larpentæ, Lindl. in Gard. Chron. vii, 732 (1847); Mohl & Schlechter, in Bot. Zeit. vi, 160 (1848).

   Valoradia plumbaginoides, (Bunge) Boiss. in DC. Prodr. xii, 695 (1848).

Type: Bunge "China—prope Pekin," probably at Leningrad, isotype at Kew, photo at Bailey Hortorium.

Perennial suffrutescent shrub to 5 dm. tall, stems woody for basal 2-5 cm., otherwise herbaceous and annual, angled, glabrous or sparsely setose (becoming more densely setose towards branch tips), weakly zig-zag from node to node; axillary buds naked: leaves obovate (occasionally obtusely rhombic), mostly 2-9 cm. long, acuminate, cuneate-attenuate with sheathing base, conspicuously setose-ciliate, surfaces glabrous: inflorescence terminal or upper 1-3 axils; outer bracts elliptic, ciliate, glabrescent, midrib weakly keeled, short-setose; innermost bracts lanceolate, 9.5-11.5 mm. long, not ciliate, glabrous except on the setose-ciliate keel, acuminate: calyx 12.0-13.5 mm. long, mostly glabrous (the single midrib sometimes sparsely setose along distal third), the lobes brownish-red except for paler hyaline margins, apex attenuate-acuminate: corolla 17-23 mm. long, dark blue.

C. plumbaginoides is readily distinguished by the absence of bud-scale remains at the base of lateral branchlets, by the glabrous foliage and calyces, and by the herbaceous stems. It is hardy in most areas of the United States and is known to withstand winter temperatures of −20° F. (with snow mulch).

This species, the common Leadwort of gardens, prized for its low growth, deep blue flowers of mid- and late-summer, and autumn coloration of its foliage, is uncommon or absent in most herbarium collections (except as from cultivation) and appears to be of restricted distribution. It was introduced to England in the autumn of 1846, to the garden of Sir George Larpent, Roehampton, who received it from a Mr. Smith of Canton, China. Smith's note of May 1846, accompanying the shipment of plants to Larpent, is of interest and was reproduced in part by Lindley (Gard. Chron. vii, 732, 1847) as follows:

> "No. 6, Mr. Fortune tried to get a plant of, but failed: yours is, therefore, the only one in England. It is very rare, even at Shanghai; and I found it on the city wall, growing out of the stone-work. It will, therefore, require good drainage. This is one of the most ornamental plants I have seen in China."

Lindley reported that one plant of the species was first exhibited in July 1847 by Sir George Larpent, and that stock was placed on the market late that year by Messrs. Knight and Perry, at whose request he named it in compliment to Lady Larpent. In complying with this request, Lindley apparently was unaware of Bunge's earlier name for the species, and called it *Plumbago Larpentæ*, a name that persisted in horticultural literature for three-quarters of a century or more.

Specimens examined[1]:

China: *Bunge, A. s.n.* (K), *Griffith, W. 4180* (K).

---

[1] Abbreviations follow Lanjouw & Stafleu "Index Herbariorum" pt. I, ed. 2, 1954. No specimens from cultivation are cited.

2. **Ceratostigma asperrimum,** Stapf ex Prain, in Journ. Bot. xl, 6-7 (1906).

C. Stapfiana, Hosseus, in Beih. Bot. Centralbl. xxviii (II) 423, 424 (1912).

The type of this taxon is Hosseus, no. 398, collected at Doi Djieng Dao, Siam, 17 Feb. 1905, at 2200 m. Isotype (Kew), photo (Bailey Hortorium). Hosseus considered it to differ from *C. asperrimum*, Stapf in the leaves paler green, glabrescent, the stems whitish (due to chalk glands), and the bracts more red, and glabrous. Examination of the types of each taxon fails to convince me that these distinctions are of specific value and, in view also of their occupying the same area, I consider Hosseus' plant to be within the range of variation of *C. asperrimum*.

Type: Collett, no. 10. Indo-China Birmann-Skan near Tounggyi, 1900 m. elev. Kew.

A low shrub; stems ribbed, sparsely and minutely appressed setose, axillary buds naked: leaves obovate to broadly spatulate, 4.5-5.5 cm. long, obtuse, base cuneate, upper surface scabrous, lower surface sparsely appressed pilose: inflorescence terminal and in upper axils; outer bracts ovate, acute; inner bracts ovate-lanceolate, acuminate, the outer ones hirsute becoming glabrescent; innermost bracts setose along keel to glabrous; calyx 10-11.5 mm. long, glabrous, eciliate.

This species is found at elevations of 1500-2000 m. in northwestern Siam. Prain placed it in Indo-China but this may be an error. Only the specimens at Kew have been seen by me.

Specimens examined:

Siam: *Hosseus, C. C. 596* (K, isotype of *C. Stapfianum*, Hosseus), *Kerr, A. F. G. 6539* (K).

3. **Ceratostigma ulicinum,** Prain, in Journ. Bot. xliv, 7 (1906).

Type: Walton, J. J. Tibetian Frontier Exped. Gyangtse, 3,360 m., July-Sept. 1904. Kew, photo Bailey Hortorium.

A low erect shrub to 6 dm. high: older stems with splitting fissured bark, somewhat exfoliating, younger ones with recurved hispidulous trichomes; lateral branches having a ring of pungent subulate bracts (persistent bud-scales) at bases: leaves obovate to lanceolate, 1.6-2.5 cm. long, glabrous on both sides, acute and weakly spine-tipped, base cuneate, margins spinulose serrulate: inflorescence an oblong aggregation of glomerules (cincinni); outer bracts ovate-lanceolate, acuminate to cuspidate, setose along keel; inner bracts lanceolate, broadly membranous on margins, glabrous; all bracts setose-ciliate; calyx 10-12 mm. long, glabrous.

The species was collected in Tibet by F. Ludlow (no. 93) October 1924, in the region of the type locality (Lat. 28° 56′, Long. 89° 36′), on mountain slopes at 14,500 feet. A recent (February, 1954) communication from W. T. Stearn reported it to have been collected in 1953 by L. J. C. Williams in Nepal.

C. ulicinum is readily recognized by its fissured bark, the spinescent

serrulate glabrous leaves, the abundant oblong inflorescences. The key character of persistent pungent bud-scales is constant but less obvious (macroscopically) than others noted here.

Specimens examined:

Tibet: *Ludlow, F. 93* (BM); *Walton, H. J. s.n.* (K).

4. **Ceratostigma minus,** Stapf ex Prain, in Journ. Bot. xliv, 7 (1905). Fig. 128.

C. Polhillii, Bulley, in Gard. Chron. ser. 3, xxx, 6 (1901).

Bulley's notation in Gardeners' Chronicle is unacceptable as a description of a species and it is only from examination of the specimen at Kew that its position can be ascertained [Bulley, W., W. China (Ta-tsien-hu, Szechuan) 26-X-1900, coll. Polhill-Turner, Esq.] The specimen represents a variation of *C. minus* in which the glomerules are fewer-flowered and are to be found in more of the leaf-axils. There is also a tendency towards more slender and flexuous flower-bearing stems.

Type: Pratt, A. E., no. 137, Western Szechwan and Tibetan frontier: "chiefly near Tachienlu" elev. 2,300-3,500 m. Kew, photo Bailey Hortorium.

Shrub 1-10 cm. tall: stems reddish, weakly ribbed to terete, mostly with abundant appressed strigose trichomes that are basally pubescent or glandular-pubescent; bud-scales or their bases persistent: leaves mostly obovate to spatulate, 1.0-3.5(5.5) cm. long, obtuse to bluntly acute and rarely with a short mucro, bases cuneate, margins setose-ciliate, with the trichomes weakly pubescent, lower surface strigose, strongly so on midrib, the trichomes simple, upper surface glabrous to sparsely strigose (plants of Szechwan often short-strigose on upper surface): inflorescence terminal and axillary, much congested and many flowered on stiff branches to few flowered and in many axils on slender flexuous stems; outer bracts ovate, abruptly acute, 3.9-4.5 mm. long, keel weak setose along distal third, margins ciliate to eciliate; inner bracts oblong, 4.2-4.6 mm. long, acute, apically short-ciliate and setose; calyx 6.5-9.2 mm. long, the lobes 5.8-6.6 mm. long, margins white, the ribs reddish and not much raised, setose with simple trichomes (no stellate hairs present), the tube glabrous; corolla 1.4-1.7 cm. long, the tube usually reddish-purple and limb deep blue.

Described on collection notes as a low bushy plant varying in height from 4 inches to 4 feet, and in habitats from river banks and adjoining open dry rocky hillsides to gravel terraces and loose screes. Its elevational range is from 8,500-15,000 feet, with the higher ranges in Tibet and the lower in Yunnan, China. It is usually recorded as locally common in areas of its occupation.

In his original description Prain did not designate a type for this species. However, Pratt's specimen is so designated at Kew and is accepted as such here. This species is represented in herbaria by a greater number of specimens, and collected from a greater distributional area, than is any other of the genus. It is the most variable of any known to me, and once in the course of this study I was prepared to recognize one series

of populations as a separate taxon. Bulley did segregate the more flexuous stemmed and strigosely-leaved plants of Szechwan as a distinct species (*C. Polhillii*), a view here rejected for reasons given in the synonymy above. Future studies based on field knowledge of the group and a greater series of specimens may result in the recognition of subordinate taxa.

C. minus is cultivated as a novelty by British fanciers but is not now available in the American trade. Plants of this species are growing at the University of Washington Botanic Garden at Seattle and I am indebted to Mr. Brian O. Mulligan for specimens of them. He reported the plant to flower about a month later than *C. Willmottianum* and to be inferior to the latter as a garden subject. In England it is reported to be less hardy than *C. Willmottianum*.

Specimens of *C. minus* have been determined erroneously as *C. plumbaginoides* and as *C. Griffithii*. Likewise some specimens determined to be this species are found to be *C. Willmottianum*. The species may be distinguished by the relatively short calyces, the more or less terete stems (ribbed when viewed with a lens), the leaves strigose below but glabrous or sparsely short-strigose above, the trichomes of the stems basally pubescent (clearly so at the magnification of 20×), and the calyces glabrous. In general the obtuse leaf-apices also provide a good distinguishing character, but on vigorous growing plants and shoots this may not be valid.

In addition to the above observations, I have found a few collections from Szechwan (cited below) that do not clearly fit the concepts presented here of either *C. minus* or *C. Willmottianum*. In general, they have the large corollas and calyces of *C. Willmottianum*, some have simple trichomes of the latter species but not its characteristically angled stems. The leaves, larger than in *C. minus*, are generally obtuse to bluntly acuminate as in that species, but are strigose on both surfaces. The leaves (and often the branchlets) are more heavily white-granulose than in *C. minus* or *C. Willmottianum*, but this may reflect an adaptive response to environment. Lack of adequate range and amount of material from this province prevents me from having any answer at this time in explanation for these more or less intermediate forms, and I am not prepared to postulate hybridity as a factor. The specimens concerned are: *Fang, W. P. 3708* (A), *Smith, H. 4602* (A), *Stevens, H. 26* (A), and *Yü, T. T. 1752* (A).

Specimens examined:

Tibet: *Ludlow, F. & Sherriff, G. 505* (BM), *1940* (BM), *2422* (BM), *2463* (BM), *2694* (BM), *2715* (BM), *8710* (BM), *9691* (BM), *11140* (BH, BM); *Ludlow, F., Sherriff, G. & Elliot, H. H. 13350* (BM), *15231* (BM), *15231a* (BM); *Ludlow, F., Sherriff, G. & Taylor, G. 5386* (BM), *5706* (BM), *6407* (BM); *Pratt, A. E. 137* (K).

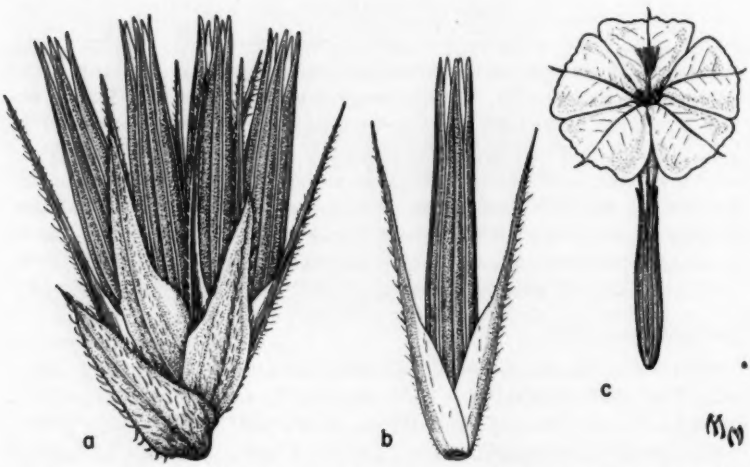
China: Sikang Province; *Chaio, C. Y. 1787* (A): Szechwan Province;

Bock, C. & Rosthorn, A. 3001 (A); *Fang, W. P. 5511* (A); *Wilson, E. H. 2315* (A); *Yü, T. T. 1726* (A): Yunnan Province; *Chun, W. Y. 11174* (A); *Delavay, s.n.* (K); *Feng, K. M. 222* (A), *605* (A), *2274* (A), *2427* (A); *Forrest, G. 601* (A), *11263* (A); *Handel-Mazzetti, F. 7788* (A); *Henry, A. 9586* (A); *Rock, J. F. 6414* (A), *6577* (A), *11578* (A), *25041* (A); *Schneider, C. 2584* (A), *3097* (A); *Tén, S. 14* (A); *Yü, T. T. 10336* (A), *10476* (A), *13303* (A), *14387* (A).

5. **Ceratostigma Willmottianum,** Stapf, in Bot. Mag. t. 8591 (1914). Fig. 127.

Type: Bean, W. J., *s.n.*, coll. "Lower Arboretum Nursery," Oct. 23, 1913, Hort. Bot. Reg. Kew. Cited by Stapf as type of Bot. Mag. t. 8591, (1914). Kew, photo Bailey Hortorium, isotype Arnold Arboretum.

Shrub 0.3-1.8 m. tall: axillary buds scaly: stems woody, strongly ribbed, the ribs strigose with simple to very weakly and basally pubescent trichomes: leaves elliptic to ovate-elliptic or oblanceolate, 2-6.5 cm. long, acuminate to acute often with projecting seta or mucro, base cuneate to broadly so, margins stiffly setose-ciliate, both surfaces strigose, the lower usually with abundant calcium-secreting glands: inflorescence large, many-flowered, mostly terminal and occasionally with a 1-3-flowered glomerule in the uppermost 1-3 axils; outer bracts lanceolate, acuminate, keeled, strigose-ciliate, 12-17 mm. long; inner bracts oblong-lanceolate, strigose only on keel, 10-14 mm. long; calyx 10.5-14.5 mm. long, lobes 8-11.5 mm. long, ribs white, minutely setulose along each side; corolla 2.0-2.6 cm. long, lobelia-blue limb and roseine-purple tube.



127. CERATOSTIGMA WILLMOTTIANUM. a, cymule showing bracts and calyces ×4; b, calyx and inner bracts ×4; c, flower ×2.

A species of Yunnan and Szechwan, and extending westward to southeastern Tibet. It is a habitant of semi-arid river valleys and their open rocky hillsides, occurring mostly at elevations in the vicinity of 1200 m.

Stapf clearly distinguished this species from the previously more commonly cultivated *C. plumbaginoides* and correctly placed it in affinity with *C. minus* and C. *Griffithii*. Unfortunately he did not distinguish it from these species. Its clear distinctions from *C. Griffithii* are cited below under that species. It is not always so easily separated from *C. minus*, with which it shares a similar habitat type and an overlapping range. No single character seems to be infallible in separating these two, but the combination of any two of those given below appear to distinguish one species from the other.

	C. Willmottianum	*C. minus*
stems	strongly ribbed or angled	terete with weak ribs
leaf shape	mostly elliptic, acuminate to acute, tipped by a seta	obovate to broad-spatulate, obtuse to abruptly acute, occasionally with a short mucro
leaf vestiture	strigose on both sides	strigose below (at least on midrib), glabrous to weakly strigescent above
outer bracts	lanceolate, the keel markedly strigose, 12-17 mm. long	ovate, the keel very weakly strigose distally, 3.9-4.8 mm. long
inner bracts	eciliate, strigose on keel only	apically short-ciliate, strigose
calyx	10.5-14 mm. long, calyx-lobe rib white	6.5-7.5 mm. long, calyx-lobe rib reddish
corolla	2.0-2.6 cm. long	about 1.5 cm. long

Specimens examined:

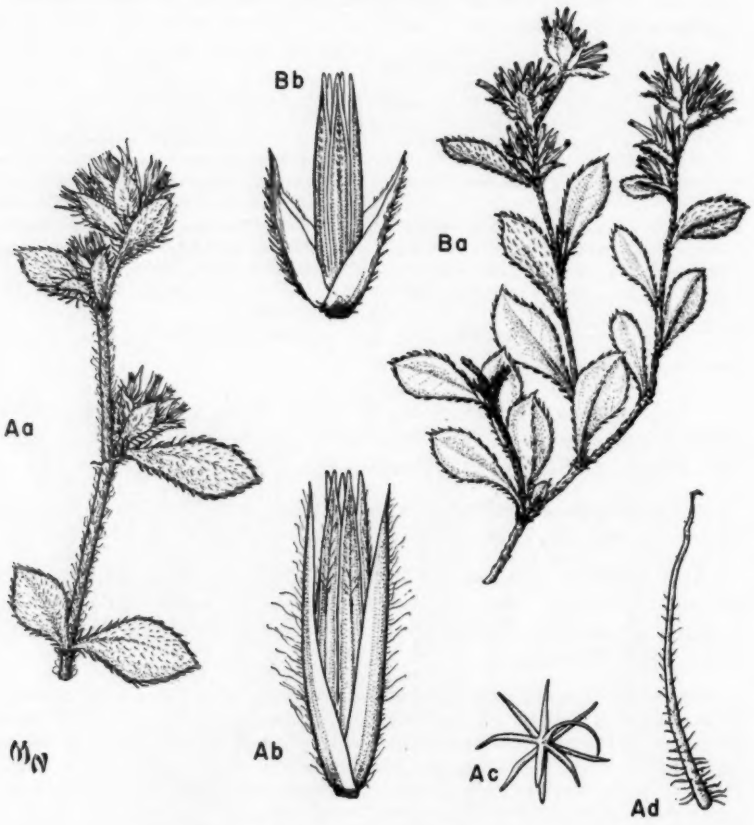
Tibet; *Ludlow, F. Sherriff, G., & Elliott, H. H. 12097* (BM), *13225* (BM): China, Szechwan; *Fang, W. P. 1528* (A), *6008* (A); *Smith, H. 2455* (A); *Wilson, E. H. 2314* (A): Yunnan; *Wang, H. 41418* (A).

6. **Ceratostigma Griffithii,** Clarke, in Hook. f. Fl. Brit. India, iii, 481 (1882). Fig. 128.

Type: Griffith, Wm. no. 1007. Bhutan; "About Panga Ceates [?] on ascent to Chupcha." The specimen is no. 4181 of the Kew Distribution (1862-3) of the "Herbarium of the late East India Company." Kew, photo Bailey Hortorium.

Shrub 3-12 dm. tall: branches terete, weakly ribbed, those of current seasons growth densely fulvous to rufous setose-hispid with the trichomes plumosely pubescent and intermixed with abundant rufous stellate hairs having 6-12 rays, the vestiture deciduous and much reduced on older stems with the stellate hairs persisting longer: bud scales persistent by at least their bases: leaves persistent, broad-spatulate to obovate or subrhombic, 1.0-3.8 cm. long, broadly acute and sometimes terminated by a short seta, base cuneate, margins stiffly strigose-ciliate with trichomes minutely pubescent, surfaces densely setose above and below, the trichomes simple except those on midrib below minutely pubescent: in-

florescence terminal and axillary, the glomerules many-flowered; outer bracts ovate to oblong-lanceolate, 9-10 mm. long, long-acute, very weakly keeled, setose, the cilia not distinct from other trichomes; inner bracts lanceolate, 8-10 mm. long, strongly keeled, margins narrowly hyaline and eciliate, keel strigose; calyx 9-11 mm. long, lobes 7-9 mm. long, midrib and margins white or very pale, the midrib strongly setose with minute stellate hairs (6-12 rays) along each side, the tube glabrous; corolla bright azure-blue, 1.5-1.8 cm. long.



128. A, Ceratostigma Griffithii. Aa, fruiting branch-tip ×1; Ab, calyx with inner bracts ×4; Ac, stellate hair ×120; Ad, plumose trichome ×30. B, Ceratostigma minus. Ba, fruiting branch-tip ×1; Bb, calyx with inner bracts ×4.

In Griffith's posthumously published Itinerary Notes (1848) he accounted for this collection under "Plumbago?" [page 189, no. 1007], noting that it came from a long much-branched bushy shrub, and that the flowers were pale blue, observing further "On walls and rock ground, between Woolookka and Lamnoo. Very common." Annoyingly enough, the names of these localities do not appear on his accompanying map, in his Journal of Travels, nor on any available large-scale maps of Bhutan. However, if one ignores Clarke's notations and follows Griffith's label data (cited above, under type), it is clear from his Journal that the specimen must have been collected on or about May 11, 1838. On that date an entry in the Journal (page 288) reads:

> "Our march continued down this river [probably Mo Chu or sometimes called Sankosh]. . . . The most common plants were Rosa . . . *Pinus pendula*, *Viburnum grandiflora*. . . . Cratægus 2 species, *Mespilus microphyllus*. . . . A low shrub abounded on the road sides and walls, having all the characters of Plumbago. . . ."

On a modern map, it would appear that Panja may be an older name for Punakha [Lat. 27° 37′, Long. 89° 51′] and Chupka for Kyapcha Dzong [Lat. 27° 12′, Long. 89° 34′]. The location of the latter agrees with Griffith's map location for Chupka. However, the present-day trail-road connecting the two is about thirty miles in length, whereas Griffith wrote (op. cit. 289) "We found Chupcha to be ten miles from Panga. . . ."

Ceratostigma Griffithii is readily distinguished from *C. Willmottianum* and *C. minus* by its densely fulvous setose-hispid twigs whose trichomes are pubescent their entire length and are intermixed with minute stellate trichomes, by the persistent leaves, and by the presence of stellate hairs along the midribs of the calyx-lobes.

The species was named for William Griffith (1810-45), a pupil of Lindley, trained also as a physician-surgeon, and best known for his botanical travels in Assam, Burma, and Bhutan. It has been cultivated in Britain, where it is tender except in the mild climate of the south. There it behaves as an evergreen. Chittenden (R.H.S. Dictionary, 1952) described the flowers of cultivated material as "½-1 inch across" but I have seen none much larger than ½ inch across.

Specimens examined:

Tibet: *Kingdon-Ward, F. 10341* (BM); *Ludlow, F. & Sherriff, G. 3562* (A). Bhutan: *Griffith, W. 1007* (K); *Ludlow, F. & Sherriff, G. 138* (BM); *Ludlow, F., Sherriff, G., & Hicks 19597* (A, BH).

7. **Ceratostigma abyssinicum,** (Hochst.) Aschers. in Schweinf. & Aschers. Aufzäkl. Nil-Land. 288 (1868); Oliv. in Fl. Trop. Afr. iii, 487 (1877).

Plumbago eglandulosa, R. Br. in Salt, Voyage to Abyssinia, Appendix, 4, lxiv (1814), *nomen nudum.*

Valoradia abyssinica, Hochst. in Flora, xxv, 2, 239 (1842), Boiss. in DC. Prodr. xii, 695 (1840).

[Publications of this name by Hochstetter ex Schimper prior to 1842 are *nomina nuda*].

Type: Schimper [A.F.W.] no. 253, "in declivitiabus saxosis regionis mediæ et inferiores australia montis Scholoda. d. 5 Nov. 1837." Isotype at Kew, photo Bailey Hortorium.

Spreading shrub 1-1.8 m. tall: stems zigzag, strongly ribbed, appressed setose: leaves narrowly elliptic to ovate-lanceolate, 1.8-3.6 cm. long, acute, base cuneate, margins setose-ciliate, both surfaces appressed setose: inflorescence mostly terminal, usually 4-9-flowered; outer bracts broadly ovate, cuspidate, setulose and distally setose-ciliate; inner bracts ovate-lanceolate, acuminate, somewhat setulose, sometimes eciliate; calyx-lobes with midribs raised and glabrous and setulose along each side; corolla about 2.0 cm. long, described to be "violet" or "rose," style-branches smooth or with flattened sessile glands.

This species was first collected by Henry Salt, a British naturalist, during his travels in Abyssinia in 1809-10. His specimen (in the British Museum, Nat. Hist.) was also from Mt. Scholoda. The species was later collected by Steudner (no. 1329) in "Athena am Asaba," and by Schweinfurth & Riva (no. 1010) "Eritræa prope Acrour." No other specimens have been seen by me but a larger series is to be sought at the Instituto Botanico, Firenze.

8. **Ceratostigma speciosum,** Prain, in Journ. Bot. xliv, 8 (1906).

Type: Phillips, Mrs. E. Lort, *sine numero* "Somaliland," without locality or data [rc'd. at Kew June 1895]. Kew, photo Bailey Hortorium. (A later specimen by A. Donaldson Smith is from vicinity of Hadrawal, Somaliland).

Scandent shrub: stems terete and weakly ribbed, the terminal ones densely fulvous-pubescent: leaves obovate to broadly elliptic, 2.8-4.0 cm. long, abruptly acuminate, terminated by a conspicuous seta, base cuneate, margins stiffly and long setose-ciliate (almost spinulosely so), upper surface minutely appressed setose, lower surface appressed strigose: inflorescence terminal and axillary, many-flowered (mostly 8-20); outer bracts ovate-lanceolate, abruptly acuminate, pectinately stiff-ciliate along distal half, appressed strigose; inner bracts lanceolate, ciliate, weakly strigescent to glabrescent; calyx 17-20 mm. long, glabrous; corolla 2.4-2.8 cm. long, described as "deep blue"; style-branches smooth or with flattened sessile glands.